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SOLAR-GEOPHYSICAL DATA
(prompt reports)

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

DECEMBER 1973

NUMBER 352-PART I
DATA FOR
NOVEMBER 1973
OCTOBER 1973

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Robert M. White. Administrator
ENVIRONMENTAL DATA SERVICE
Thomas S. Austin, Director

Solar - Geophysical Data

NO. 352 DECEMBER 1973

Part I (Prompt Reports)

DATA FOR
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NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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SOLAR - GEOPHYSICAL DATA

No. 352

Issued in two parts

Hope I. Leighton, Editor

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Solar - Terrestrial Data Services Division

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NOVEMBER 1973 DATA

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

NOVEMBER 1973

NOV. 1973	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT	
			NO.	TYPE INCLUDING FLARE ACTIVITY EXPECTED
01	0400			SOLNIL THREE QUIET
02	0400			SOLNIL FOUR QUIET
03	0115	TOYOKAWA TENFLARE 190 UNITS 03/0014Z IN PROGRESS WEST LIMB		
	0054	CARNARVON TENFLARE 225 03/0011Z IN PROGRESS MAX 03/0019Z		
	0400			SOLNIL FOUR QUIET
04	0400		04635	MAGALERT 05/09 TWO QUIET
05	0400		05636	MAGALERT 06/09 TWO QUIET
06	0400		06637	MAGALERT 07/09 NO SPOTS VISIBLE STRATWARM TUESDAY ANTARCTIC FINAL WARMING IN PROGRESS PRESSURE RIDGE NOW EVIDENT OVER WILKES LAND AT 50 MB UPPER STRATOSPHERE WARM OVER MOST OF ANTARCTIC
07	0400			SOLNIL NO SPOTS VISIBLE
08	0400			SOLNIL NO SPOTS VISIBLE
09	0400			SOLNIL NO SPOTS VISIBLE
10	0400			SOLNIL NO SPOTS VISIBLE
11	0400			SOLNIL NO SPOTS VISIBLE
12	0400		12638	MAGALERT 12/18 ONE QUIET
13	0400		13639	MAGALERT 13/18 TWO QUIET
14	0400		14640	MAGALERT 14/19 ONE QUIET
15	0400		15641	MAGALERT 15/19 MINOR SOLNIL TWO QUIET
16	0400		16642	MAGALERT 16/19 MINOR ONE QUIET
17	0400		17643	MAGALERT 17/19 MINOR ONE QUIET
18	0400		18644	MAGALERT 18/19 MINOR ONE QUIET
19	0400		19645	MAGALERT 19/XX THREE QUIET
20	0400			SOLNIL THREE QUIET
21	0400			SOLNIL FOUR QUIET
22	0400			SOLNIL SIX QUIET
23	0400			SOLNIL S09E62 ERUPTIVE FIVE QUIET
24	0400		24646	MAGALERT 24/27 MINOR S11E48 ERUPTIVE ONE QUIET
25	0135	BOULDER MAGSTORM BEGINS 24/07XXZ INCREASED TO STORM INTENSITY 25/0130Z		
	0400		25647	MAGSTORM BEGINS 24/07XX S11E36 ERUPTIVE ONE QUIET
26	0400		26648	MAGSTORM EXISTS MINOR S11E22 ERUPTIVE FOUR QUIET
27	0400		27649	MAGSTORM EXISTS MINOR S10E08 N05W21 ERUPTIVE THREE QUIET
28	0400		28650	MAGSTORM ENDS 27/1500Z S10W01 ERUPTIVE THREE QUIET
29	0400			SOLNIL S10W55 ERUPTIVE THREE QUIET
30	0400			SOLNIL S10W27 ERUPTIVE FOUR QUIET

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

1972 FINAL, 1973 PROVISIONAL

DAY	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	40	45	7	48	65	24	8	26	36	89	68	31
2	31	53	17	38	79	46	8	25	28	129	66	33
3	28	55	22	35	93	64	16	29	21	125	52	23
4	24	60	21	32	93	77	14	24	28	127	50	20
5	21	72	41	22	75	92	7	32	34	108	44	0
6	18	83	32	32	75	68	16	44	40	84	38	0
7	24	66	34	38	76	82	37	46	42	77	70	0
8	29	60	53	50	71	52	34	44	40	72	22	0
9	42	70	60	53	68	30	28	34	38	75	23	0
10	53	55	61	67	65	25	35	30	27	62	8	0
11	61	52	59	69	62	26	60	23	23	42	0	7
12	64	32	80	92	46	18	58	14	0	27	0	0
13	67	35	83	79	41	7	52	15	0	0	8	9
14	69	15	85	78	37	7	51	9	0	0	10	11
15	71	10	74	73	35	25	46	16	8	8	16	12
16	66	11	54	64	29	33	41	9	0	33	18	13
17	71	27	36	52	16	34	34	22	8	20	19	12
18	58	42	28	44	15	41	18	36	7	16	15	16
19	49	47	18	34	32	42	38	23	7	8	0	22
20	54	60	30	23	42	32	46	8	7	30	8	16
21	67	62	31	20	45	52	75	8	15	39	0	23
22	59	62	25	30	67	53	61	14	10	48	20	29
23	57	60	33	37	72	47	48	0	17	58	38	39
24	48	50	38	29	73	57	48	9	22	63	36	37
25	43	39	48	27	67	64	47	14	28	82	53	38
26	39	27	37	23	67	46	43	8	38	82	59	54
27	34	8	36	32	67	51	38	9	37	83	53	56
28	26	14	38	43	60	32	39	10	47	80	66	54
29	25	7		46	54	23	51	17	56	75	78	54
30	29	16		50	42	21	33	11	64	71	63	55
31	37	13		56		17		22	82		37	
MEAN	45.3	42.2	42.1	45.4	57.6	41.5	37.6	20.4	25.6	60.8	33.0	22.1

1972 yearly mean = 68.9

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_A

1972 1973

DAY	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
1	91.1	93.9	88.6	99.5	115.0	111.9*	85.2	90.9	78.2	103.4	98.1	78.3
2	89.4	98.2	88.6	101.6*	118.1*	115.0*	83.1	93.1	78.1	116.3*	95.5	75.5
3	85.2	105.1*	93.1	97.8*	129.4	117.3	81.5	93.5	76.5	122.9	93.2	73.8
4	82.3	109.3*	94.1*	96.6	122.3	115.9*	81.0	94.9	77.6	121.5*	85.4	69.7
5	80.4	113.3	94.3	94.8	117.7	115.8*	82.5	97.9	76.6	121.6*	81.5*	66.5
6	77.8	115.8	95.3*	98.9	112.7*	109.7	85.1	99.4	79.9	117.8	77.3	65.9
7	87.1	112.3	98.5	92.2	110.3	103.4	85.3	99.9	81.7	109.5*	74.8	64.9
8	91.6*	103.2	100.5	98.9*	121.0	100.8	87.4	97.6*	78.8	104.1	72.1	63.4
9	94.7*	103.7	100.9	104.7*	120.5	95.1	88.9	98.6*	78.4	101.8*	71.2	63.4
10	97.2*	103.8	102.1*	105.6*	115.5	90.9*	91.0	100.5	75.1	96.0*	69.3	63.6
11	105.1*	102.8	101.2	113.4	110.3*	87.0	92.9	94.0	71.0	87.1	67.4	64.1
12	106.3	103.5	104.6*	114.5	130.4*	86.8	93.6	89.4	68.7	80.6	64.8	63.6
13	111.2*	100.9*	104.7*	118.9	99.4*	85.2	96.3	88.3	67.2	76.1	63.5	65.3
14	114.8*	96.2	105.6	114.0*	92.7*	89.3	97.7*	79.5	66.7	74.6	65.4	66.4
15	116.1*	94.6	104.7	107.1*	89.5	90.1	98.2	78.7	65.3	74.3	68.1	67.5
16	110.2	93.8	98.7	106.9	85.0	89.5	95.2	79.5	66.7	75.5	68.0	68.6
17	111.9	94.2	94.2	101.5	82.1	91.4	89.8	79.1	67.5	73.6	71.6	67.8
18	112.4	95.3	90.7	94.9	80.9	95.4	91.4	83.6	67.8	76.1	70.5	68.0
19	113.2	94.8	88.9	96.7*	82.8	99.4	99.2	81.6	67.9	77.9	69.0	67.9
20	111.4	98.3	89.4	91.0	86.4	104.7*	105.4	79.5	69.1	82.8	66.1	69.1
21	113.4*	97.9	89.9	87.4	95.2	102.2	108.8	79.4	72.4*	85.4	72.0	72.6
22	107.9*	98.5	89.7	90.3	105.0	103.1	109.4	77.6	72.4	89.6	76.5	76.2
23	106.2	97.2	91.4	87.1	109.2	99.6	108.8	78.6	73.6	93.5	80.9	77.9
24	101.1	96.9	93.6*	89.4	109.0*	104.5	106.1	81.6	76.8	95.6	87.8*	78.3
25	103.3*	95.6	97.2	98.0	109.2*	104.7	101.3	83.8	80.0	101.4	90.9	79.2*
26	97.7	95.3	95.6	88.6	110.0*	101.1	100.3	85.0	82.1	104.0	90.9	82.6*
27	97.6	93.4	98.2	92.0	111.6*	99.9	94.8	85.5	85.6	104.3	91.5*	79.9
28	91.9	91.7	100.9*	94.2	112.6	94.1	95.2	84.2	87.8	106.3	90.6	81.6
29	92.8*	91.4		99.0	109.5*	93.3	95.1	89.5*	90.7	104.9	89.2	85.4
30	92.8*	89.7		102.7	106.2*	90.8	94.1*	86.1	91.2	104.9*	87.7*	86.1*
31	94.3	87.7		110.3		87.2		86.6	98.6		80.6	
MEAN	99.7	99.0	96.3	99.4	105.8	99.1	94.2	87.2	76.5	96.1	78.4	71.7

* adjusted for burst

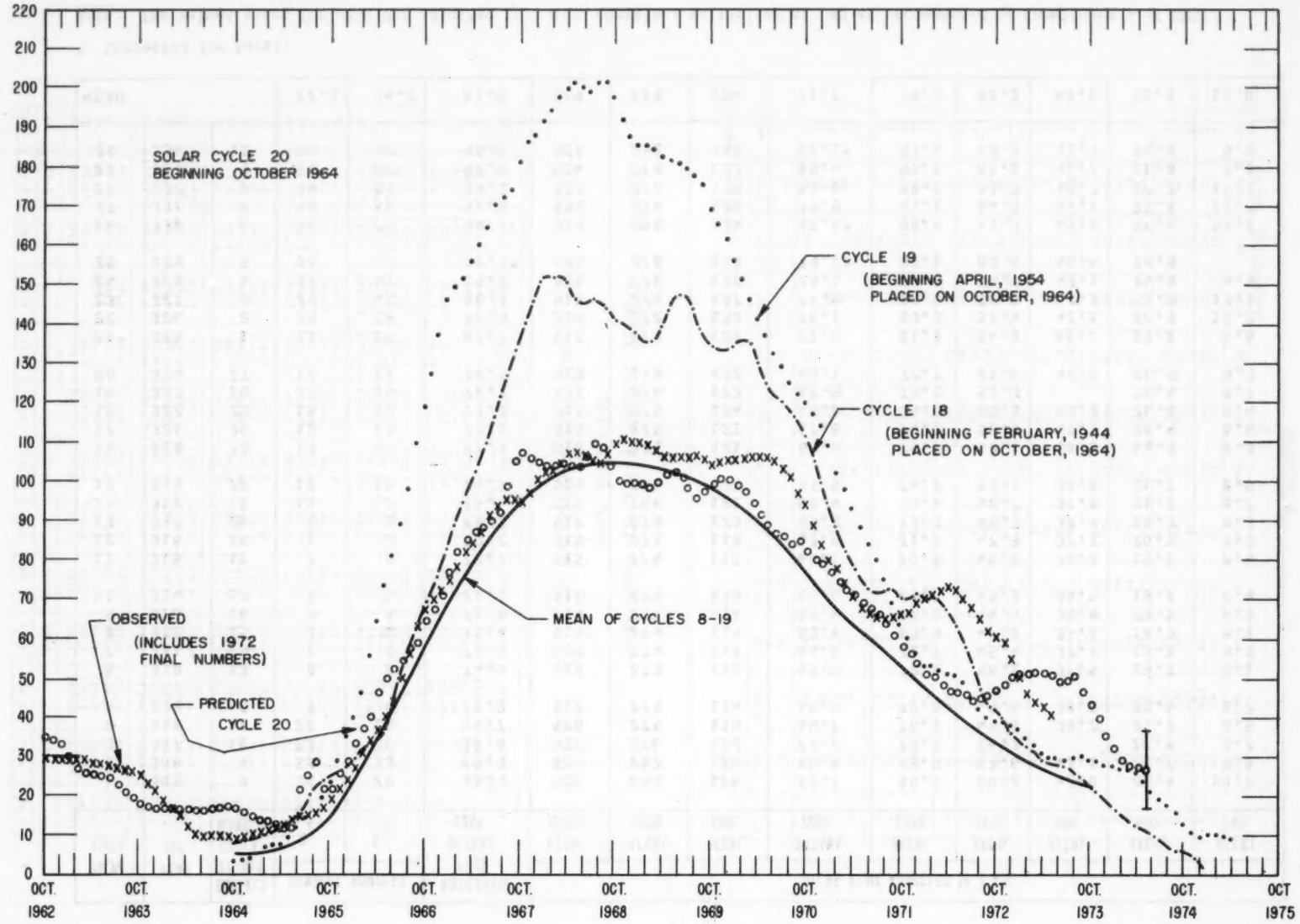
DAILY SOLAR INDICES

NOVEMBER 1973

NOV. 1973	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFCRL 15400	AFCRL 8800	AFCRL 4995	OTTAWA 2800	AFCRL 2695	AFCRL 1415	AFCRL 606	AFCRL 410	AFCRL 245
1	305	8	31	29	88.3	528	280	126	78.3	85.5	60.2	42.0	21.4	10.3
2	306	9	33	33	85.3	525	282	126	75.5	82.9	57.6	43.1	21.7	9.0
3	307	10	23	21	82.4	527	276	122	73.0	79.7	54.2		20.5	8.7
4	308	11	20	16	78.7	520	275	119	69.7	76.8	49.8	38.2	21.2	8.5
5	309	12	0	0	75.2	517	275	114	66.5	72.8	49.6	38.5	20.6	8.7
6	310	13	0	0	74.5	510	273	113	65.9	72.1	48.1	37.5	19.3	8.1
7	311	14	0	0	73.4	509	274	117	64.9	70.7	45.4	37.8	19.9	9.0
8	312	15	0	0	71.8	515	274	114	63.4	69.8	47.0	35.8	19.5	8.1
9	313	16	0	0	71.8	514	275	114	63.4	69.0	44.4	36.8	20.5	8.3
10	314	17	0	0	72.1	515	275	114	63.6	69.0	45.0	36.5	19.8	8.4
11	315	18	7	0	72.7	515	274	117	64.1	70.5	45.5	36.9	19.5	8.6
12	316	19	0	3	72.2	515	271	118	63.6	71.5	47.9	37.2	20.6	8.5
13	317	20	9	9	74.2	517	270	120	65.3	72.3	49.7	37.9	20.3	8.3
14	318	21	11	12	75.4	515	266	121	66.4	73.4	48.7	37.8	21.0	8.7
15	319	22	12	14	76.7	514	269	122	67.5	74.7	50.1	38.8	21.7	8.5
16	320	23	13	14	77.9	510	271	121	68.6	75.7	50.1	38.2	19.9	8.3
17	321	24	12	13	77.1	514	275	122	67.8	74.3	50.0	40.2	20.9	8.6
18	322	25	16	13	77.3	511	275	124	68.0	74.7	49.1	40.2	21.1	8.4
19	323	26	22	15	77.3	521	274	123	67.9	75.0	51.3		21.4	8.7
20	324	27	16	11	78.7	519	278	122	69.1	77.2	51.6	40.5	21.9	9.3
21	325	1	23	15	82.7	517	277	128	72.6	81.5	54.3	41.1	23.1	9.6
22	326	2	29	26	86.9	516	272	130	76.2	83.3	57.4	42.1	22.9	10.2
23	327	3	39	40	88.7	519	278	137	77.9	86.5	58.9	42.1	23.8	13.1
24	328	4	37	41	89.3	515	276	132	78.3	85.5	55.7	42.1	24.0	14.5
25	329	5	38	50	90.3*	521	278	133	79.2*	89.5	60.6	46.4	28.9	
26	330	6	54	75	94.2*	528	280	134	82.6*	90.6	61.3	45.2	27.4	23.2
27	331	7	56	56	91.3	532	274	126	79.9	91.1	64.5	44.1	23.8	12.7
28	332	8	54	81	93.2	528	276	130	81.6	89.5	61.9	42.7	27.2	15.1
29	333	9	54	67	97.5	524	278	133	85.4	95.5	61.1	41.7	21.8	9.3
30	334	10	55	62	98.5*	526	281	146	86.1*	99.4	63.8	41.7	24.0	9.6
MEAN			22.1	24.2	81.5	519	275	124	71.7	79.3	52.2	40.1	22.0	10.0

* Corrected for burst.

Note: The values given for 2800 MHz adjusted to 1 A.U. contain a multiplier of .90 as recommended by Commission V of URSI.



PREDICTED AND OBSERVED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS

CYCLE 20

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
1964										9.6	10.2	11.0
1965	11.7	12.0	12.5	13.6	14.6	15.0	15.5	16.4	17.4	19.7	22.3	24.5
1966	27.7	31.3	34.5	37.4	40.7	44.6	50.3	56.6	63.1	67.6	70.2	72.7
1967	75.0	78.8	82.2	84.6	87.4	91.3	94.1	95.3	95.3	95.0	97.1	100.6
1968	102.6	102.9	104.7	107.2	107.6	106.6	105.2	104.8	107.0	109.9	110.6	110.1
1969	110.0	109.6	108.0	106.4	106.2	106.1	105.8	106.4	105.4	104.1	104.6	104.9
1970	105.6	106.0	106.2	106.1	105.8	105.3	103.8	101.0	97.2	93.9	89.4	84.1
1971	80.4	77.8	74.4	70.9	68.1	66.7	65.4	64.6	65.8	66.2	66.8	69.4
1972	70.8	71.2	72.4	73.4	72.9	70.5	68.1	65.4	62.0	60.3	58.5	54.8
1973	50.3	45.8	43.6	42.3	40.3	38.7 (2)	37.5 (4)	36.8 (5)	35.9 (7)	34.4 (7)	32.7 (7)	31.1 (8)
1974	29.8 (8)	28.5 (8)	27.5 (9)	26.7 (10)	26.3 (10)	25.5 (10)	24.3 (10)	22.8 (10)	21.2 (10)	19.9 (10)	18.5 (10)	17.5 (11)
1975	16.7 (10)	15.7 (10)	15.0 (10)	14.5 (10)	13.9 (9)	13.4 (10)	13.3 (11)					

For each month, the upper figure is the observed or predicted Zürich smoothed sunspot number. The lower figure in parenthesis is the corresponding absolute value of the 90% prediction interval, an indication of the uncertainty above and below the predicted number. Observed numbers are those with no prediction intervals. The observed smoothed sunspot numbers are based on final Zürich numbers through 1972.

The predicted sunspot numbers are derived from a regression analysis based on cycles 8 through 19. Tests indicate that earlier cycles are from a different statistical population. From July 1968 - February 1970 a regression analysis based on cycles 1 through 19 was used because it had not then been proven that two populations exist.

SOLAR FLARES

PARTIAL LISTING

Solar Flares for which at least one observatory has assigned a numerical importance of "1" or greater.

NOVEMBER 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE 1973 NOV	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
MANI	03	0814E	0100	0814U	S13	W82	.993	12584	27.9	46D	1N	1		0814	1.24	3.31			F
MANI	03			0834U							2B			0834	2.58	6.90			F
ATHN	04	0954	1009D	0958	S14	W90	1.000	12588	28.7	15D	1B	2	C						DE
CATA	12	1230E	1240D	1235	N18	E90	1.000	12618	19.3	10D	1F	3		1235	.58			(148)	
CATA	21	0730E	0800D	0730	S08	E90	1.000	12628	28.1	30D	1N	3		0730	.58			(158)	
MONT	21	0756	0808	0800	S10	E90	1.000		28.1	10	SN		C	0800	.21				
MITK	22	0047	0122	0110	S11	E85	.997	12628	28.4	35	1N		C	0110	1.55				D
CRON	22	0111E	0126D		S12	E79	.984		28.0	15D	SF		V		.41				
MITK	22	0212	0245	0221	S11	E83	.994	12628	28.3	33	1N		C	0221	1.44				D
CRON	22	0220E	0230		S12	E78	.981		27.9	10D	SN		V		.41				
CATA	25	1450	1515D	1500	S12	E24	.461	12628	27.4	25D	1B	3		1500	2.90	3.21		(209)	
RAMY	25	1455	1518	1456	S10	E25	.462		27.5	23	SN	3	C		.84				F H
CANR	25	1505	1515	1508	S11	E25	.468		27.5	10	SF		V	1508	.83				
MANI	26	0552E	0555D	0552U	S08	E17	.333	12628	27.5	3D	1B	2		0552	2.58	2.62			E
CRON	26	0554E	0603D	0557U	S08	E17	.333		27.5	9D	SB		V	0557	1.03				
TEHR	26	0555E	0605D	0559U	S06	E19	.349		27.7	10D	SN	3	V		.31				F
ATHN	26	0555E	0609	0555U	S11	E17	.359	12628	27.5	14D	1B	1	V		2.15				F
ATHN	26	1332	1401	1338	S09	E11	.262		27.4	29	SN	2	C		.99				F
ATHN	26			1348				12628			1B				2.31				F
CANR	26	1337	1400	1341	S08	E11	.251		27.4	23	SN		V		1.03				
CANR	26			1349				12628			1N		V		3.30				
RAMY	26	1520E	1541	1523	S07	E10	.227		27.4	21D	SB	3	C		1.49				F H
RAMY	26			1525				12628			1B				2.78				F H
MITK	27	0303	0325	0313	S08	E03	.171		27.4	22	SN		C	0313	1.34	1.30			DH
CRON	27	0306	0329	0313	S07	E04	.162		27.4	23	SB		V		1.03				
MANI	27	0310E	0314D	0312	S08	E03	.171	12628	27.4	4D	1B	1		0312	3.09	3.12			E
PALE	27	0312E	0322D	0314U	S08	E02	.167	12628	27.3	10D	1N	2	V		2.37				U F
CRON	27	0748E	0800		S13	W82	.992		21.2	12D	SF		V		.41				
ATHN	27	0749E	0759	0751	S13	W86	.998		20.9	10D	SF	1	V		.33				DE
CATA	27	0758E	0800D	0755	S14	W90	1.000	12623	20.6	10D	1H	3		0755	.58			(155)	
MONT	30	0306	0953	0924	S13	W33	.582		27.9	47	SN		C	0924	1.13				E
CRON	30	0307E	0938	0907U	S14	W33	.587		27.9	31D	SF		V		.31				
CRON	30			0919							SN			0919	1.19				
TEHR	30	0909	0938	0916	S15	W33	.593		27.9	29	SN	3	C		.55				F
ARCE	30	0915	0943		S14	W33	.587		27.9	30	SB		C	0922	1.14	1.40			
CANR	30	0920	0923D		S15	W31	.568		28.1	3D	SN		V	0923	1.34	1.50			
CATA	30	0930E	0950	0930	S15	W32	.580	12628	28.0	20D	1B	3		0930	1.73	2.09		(229)	

"Remarks":
A = Eruptive prominence, base at >90°
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No spots visible in the neighborhood.
H = Flare with high velocity dark surge.
I = Very extensive active region.
J = Plage with flare shows marked intensity variations.
K = Several intensity maxima.
L = Filaments show effects of sudden activation.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H or K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line.
S = Brightening follows disappearance of filament (same position).
T = Region active all day.
U = Close and somewhat parallel bright filaments (|| or Y shape).
V = Occurrence of an explosive phase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα emission.
Y = Onset of a system of loop-type prominences.
Z = Major sunspot umbra covered by flare.

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

SOLAR FLARES

Date, time (UT) and coordinates of Subflares not included in preceding table.

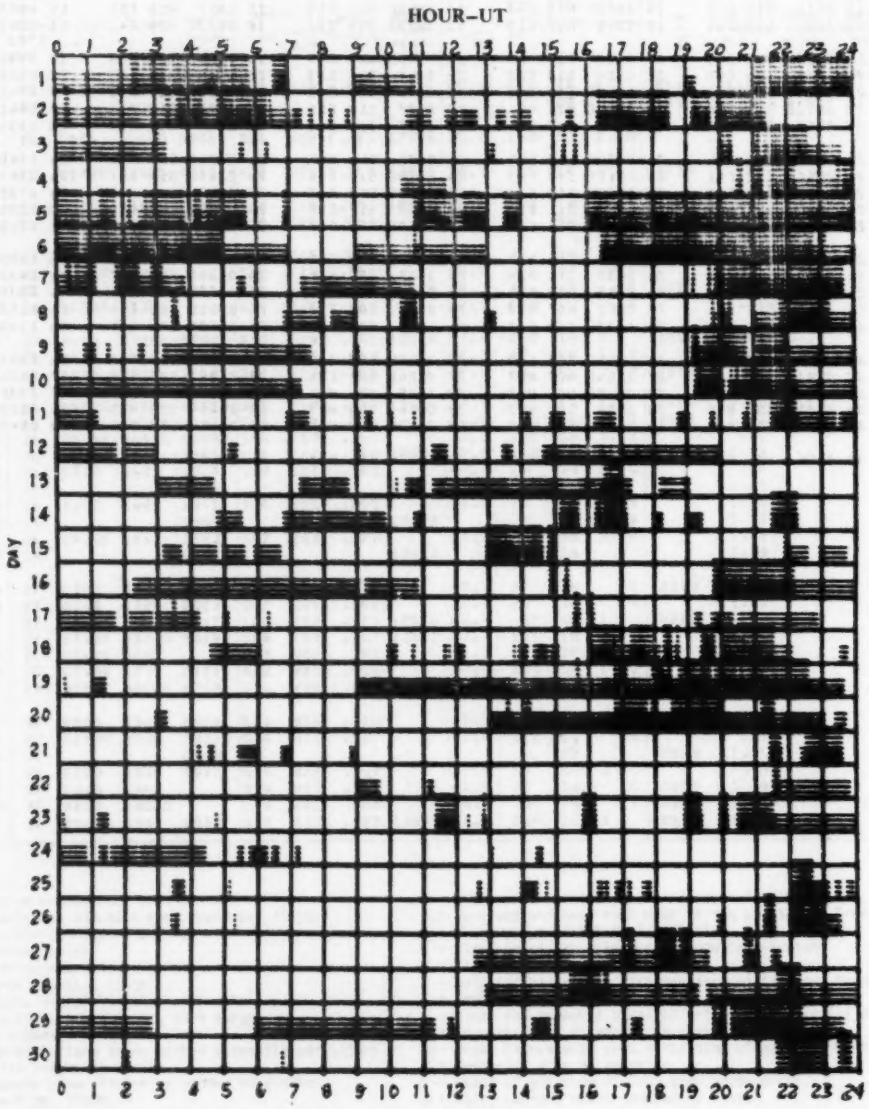
NOVEMBER 1973

01	0328E	N20	W67	01	0740	S18	W59	01	1136	S10	W51	01	1716	S18	W66	01	1925	S18	W65	01	1925	S13	W65
01	1932E	S16	W67	02	0200	S14	W58	02	0908	S13	W60	02	1223E	S13	W60	06	0455E	S10	W60	07	1555	N17	E77
12	1015	N15	E90	13	0622	N15	E80	13	0840	N15	E78	13	0935	N14	E78	13	1135	N14	E74	13	1315	N15	E73
14	0212E	N13	E68	15	0516	N15	E49	15	0826E	N13	E48	15	0855E	N14	E49	15	0857	N15	E50	15	0859E	N15	E50
15	1315	N16	E56	17	0000	N03	E41	18	0341	N13	E13	18	0522E	N19	E32	18	0523E	N24	E41	18	0548E	N14	E07
18	1855	S10	E69	19	0527	S11	E66	19	0533	S13	E65	19	0536E	S12	E65	19	0536E	S15	E62	19	0536E	S15	E62
19	1253E	S12	E61	20	1225	S06	E49	22	0918	S13	E23	22	0948	S11	E73	22	1006	S11	E73	22	1025	S08	E72
22	1209	S11	E71	22	1320E	S13	E71	22	2315E	S12	E68	23	0658	S11	E59	23	0731E	S12	E58	23	0742E	S11	E60
23	0758E	S11	E56	23	0812E	S10	E56	23	0840E	S10	E54	23	0927	S12	E81	23	0927E	S13	E78	23	0941	S09	E55
23	0945E	S10	E56	23	0945	S09	E54	23	0959	S12	E55	23	1705	S12	E58	23	1705	S12	E57	23	1834	S13	E54
23	2252E	S10	E52	24	0003E	S13	E54	24	0029E	S13	E55	24	0031	S14	E16	24	0329E	S13	E52	24	1546	S10	E44
24	1552	S09	E47	24	2000	S13	E41	24	2017E	S13	E40	24	2216E	S14	E56	24	2307E	S11	E57	24	2345	S13	E53
25	0420	S11	E32	25	0422	S11	E30	25	0437E	S10	E38	25	0442E	S10	E37	25	0715	S11	E31	25	0735	S12	E31
25	0851E	S12	E32	25	0851	S11	E35	25	0851	S11	E35	25	0855	S12	E32	25	0855E	S10	E32	25	1258	S15	W59
25	1427E	S10	E25	25	2049	S14	E29	25	2144E	S10	E20	25	2250E	S10	E28	25	2308E	S10	E20	25	2313E	S12	E19
26	0000	N06	W08	26	0023	S10	E18	26	0023	S10	E18	26	0025E	S09	E19	26	0102	S09	E19	26	0103	S08	E20
26	0152	S09	E18	26	0435	S10	W27	26	0435	S11	W24	26	0437	S12	W26	26	0438E	S09	E17	26	0438E	S12	W26
26	0704	S07	E19	26	0705E	S11	E15	26	0705	S09	E15	26	0708E	S09	E15	26	0712E	S08	E16	26	0935	S08	E14
26	0936	S08	E14	26	0936	S10	E14	26	0952	N07	W13	26	0955	S09	E13	26	0956E	S09	E14	26	1100	N07	W14
26	1100	S09	E14	26	1103	S09	E15	26	1103E	S07	E11	26	1146	S09	E12	26	1150E	S08	E11	26	1348E	S08	E11
26	1425	S08	E11	26	1427	S07	E12	26	1548E	S07	E13	26	1755E	S13	W75	26	1954	S06	E10	26	2308E	S08	E07
26	2332E	S08	E07	27	0001E	S10	E04	27	0104E	N07	W20	27	0124E	S08	E06	27	0124	S08	E05	27	0124E	S09	E04
27	0130E	S10	E05	27	0135E	S09	E04	27	0145E	N05	W19	27	1025	S09	W01	27	2309	S09	E07	27	2330E	S09	E07
28	0005	S11	W52	28	0531E	S09	W05	28	0534	S07	W02	28	0600	S09	W03	28	0948	S09	W05	28	1123	N07	W38
28	1158	N07	W38	29	0445E	S09	W19	29	0445	S08	W20	29	0445E	S09	W19	29	0456E	S07	W20	29	0646	S09	W19
29	0720E	S10	W19	30	0226	S08	W33	30	0227E	S08	W29	30	1947	S14	W38	30	1948	S11	W44				

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

NOVEMBER 1973



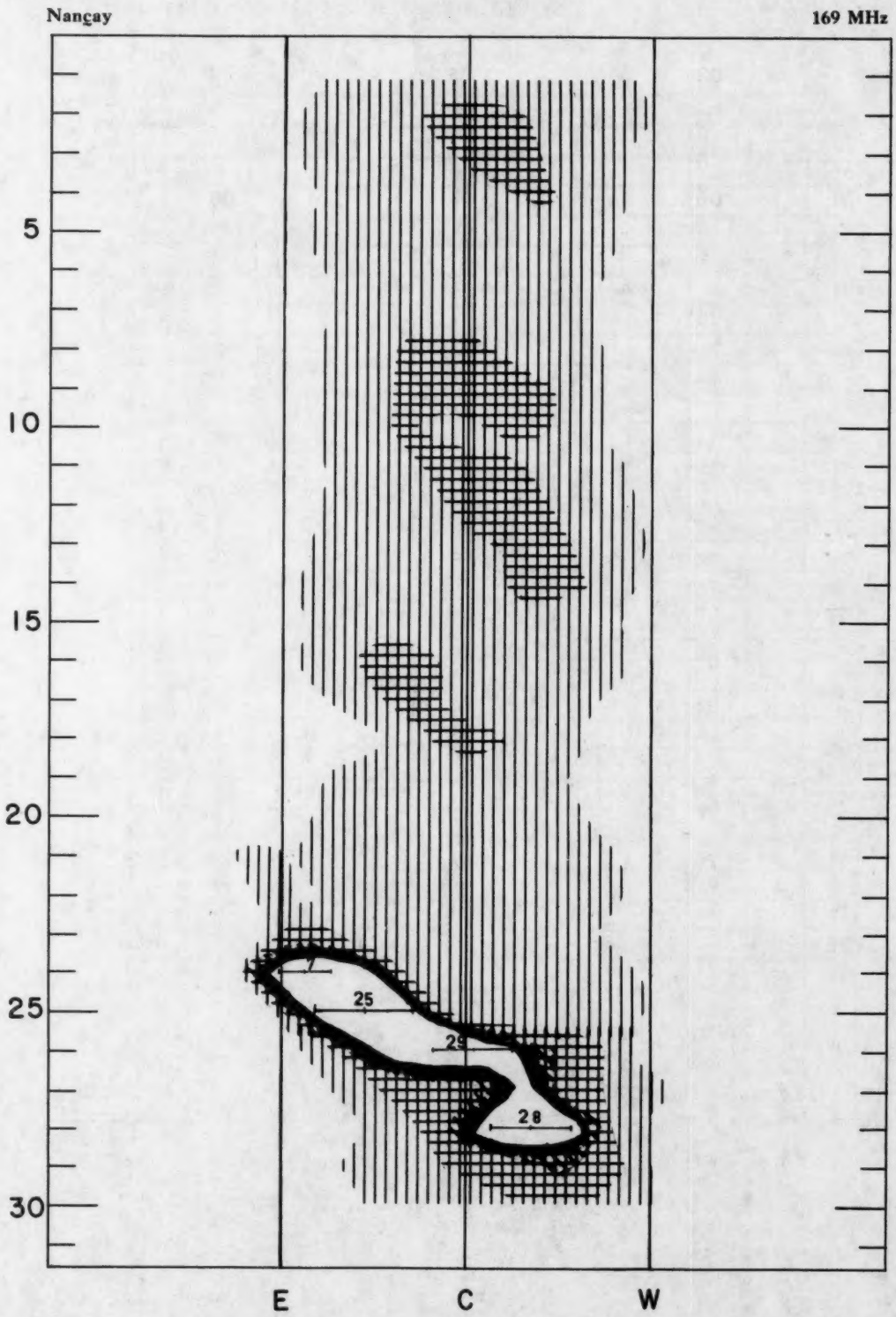
Observatories included in total patrol:

Arcetri	Capri-F (German)	Gran Canaria	Manila	Palehua
Athenes	Carnarvon	Herstmonceux	McMath-Hulbert	Ramey
Bucharest	Catania	Istanboul	Mitaka	Teheran
			Monte Mario	Wendelstein

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

NOVEMBER 1973



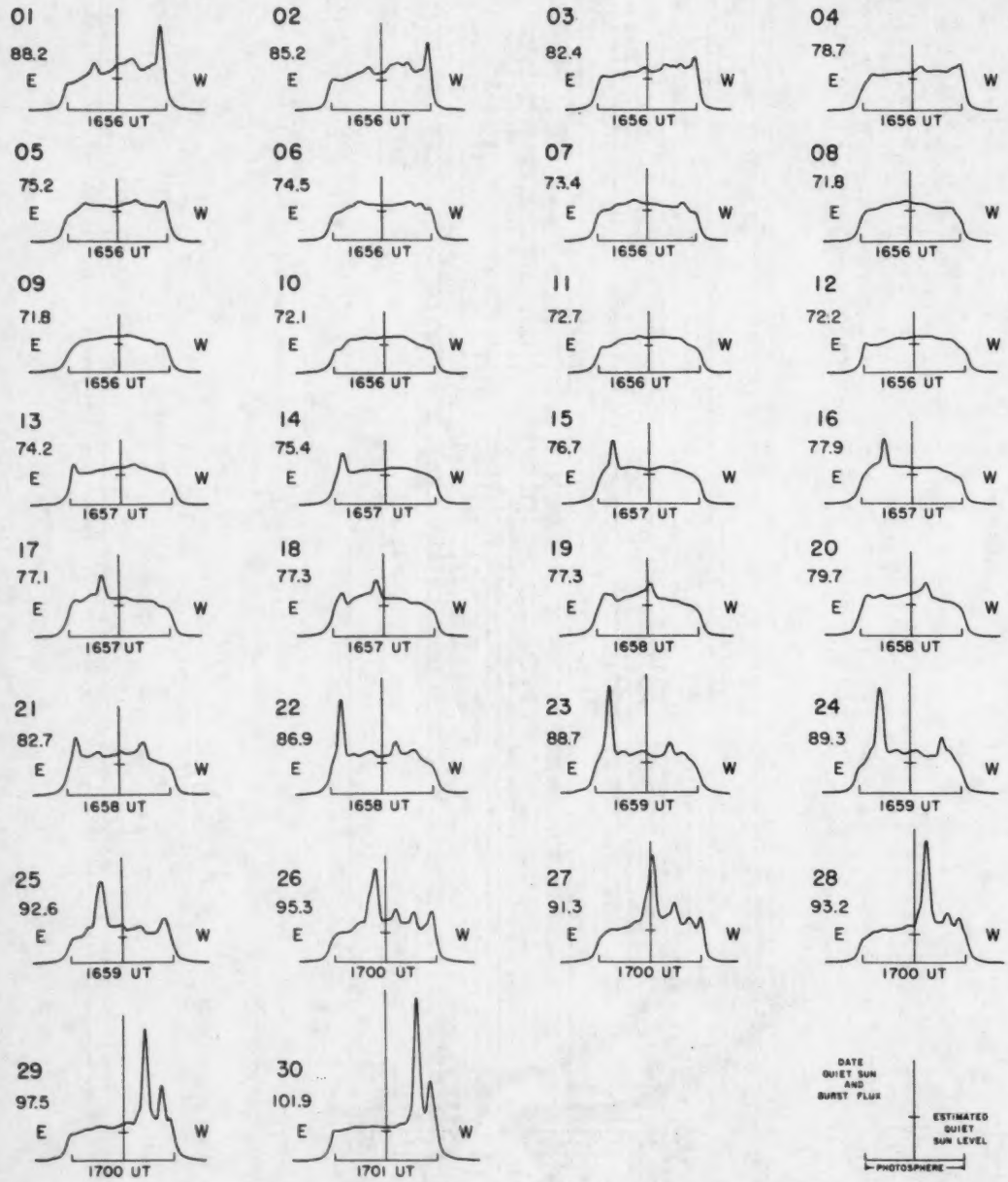
14
Nov 73

EAST-WEST SOLAR SCANS

November 1973

ALGONQUIN RADIO OBSERVATORY
CANADA

10.7cm
Fan-Beam with 1.5 minutes of arc
E - W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1973

NOV. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
1	2800	OTTA	21	1750	1940	340 D	11.8			
	2800	OTTA	20	1750	1755	25	2.0	1.0		
	2695	BOUL	40	1845.5	1855.5	43.5	15.0	3.0		
	2695	SGMR	22	1848.8	1855.5	85.9	12.2	7.3		
	2800	OTTA	1	1854	1855.5	4	8.4	4.0		
	2695	PENT	1	1904.5	1904.7	2	3.2	0.8		
	2800	OTTA	1	1909	1012.5	7	3.8	1.9		
	2800	OTTA	1	1922	1924	7	3.8	1.9		
2	2800	OTTA	26	1720	1720	150	2.4	1.2		
	2695	CANR	3	1735	1736.5	3.5	2.0	1.0		
	2800	OTTA	8	1916	1916.2	.3	10.8	3.9		
	2695	BOUL	8	2310	2310.5	2	28.0	7.0		
3	2695	MANI	4	0011.5	0018.2	23.8	250.0	106.0		
	2695	MANI	29	0035.3	0035.3	26.2	19.2	5.1		
	2695	CRON	45	0012	0020	103.5	227.0	86.0		
	8800	MANI	4	0012.4	0018.2	17.3	230.0	94.0		
	8800	MANI	29	0029.7	0029.7	29.9	58.0	15.7		
4	2800	OTTA	22	1939	1945	20	3.0	1.5		
	2695	BOUL	3	1940.5	1945.5	8	4.0	1.0		
8	8800	SGMR	3	1731.8	1732.4	1	12.0	3.6		
10	2695	BOUL	3	2245.5	2246	1	3.0	1.0		
15	2695	CRON	3	1433	1434.5	2	2.0	1.0		
16	2695	CANR	45	1735.5	1740.5	6.5	6.0	2.0		
17	2695	CANR	3	0900	0902.5	4	3.0	1.0		
18	2800	OTTA	20	1845	1915	60	1.4	0.7		
19	2695	CANR	3	0746.5	0747.5	2	4.0	1.0		
	2695	PENT	24	2115	2135	20	1.4	0.6		
20	2695	BOUL	8	1829.5	1830.5	1.5	11.0	4.0		
	2800	OTTA	3	1829.5	1830	6	10.4	2.6		
	8800	SGMR	1	1829.8	1830.1	1.3	6.4	1.9		
23	2800	OTTA	26	1430	1430	32	1.6	0.8		
	2800	OTTA	41	1705.5	1709.5	4.5	1.6			
	2800	OTTA	1	1705.5	1705.8	.1	1.2	0.6		
	2800	OTTA	1	1708.5	1709.5	1.5	1.6	0.8		
	2695	PENT	2	2214.2	2215.3	1.8	1.8	0.8		
	2695	CRON	45	2346.5	2350	5	13.0	3.0		
	8800	MANI	2	2347.8	2350.8	7.1	7.5	3.0		
	2695	MANI	22	2347.9	2350.2	10.7	9.1	1.7		
24	2800	OTTA	20	1545	1549	10	.8	0.4		
	2800	OTTA	21	2002	2010	30	2.8	1.4		
	2695	SGMR	23	2002.9	2008.1	15.1	4.4	2.6		
	2695	BOUL	8	2003.5	2004.5	2	59.0	21.0		
	2695	PENT	2	2003.2	2003.3	2	6.4	3.1		
	8800	SGMR	4	2003	2004.3	9	22.6	6.8		
	2695	SGMR	4	2003.6	2003.9	1.2	61.8	18.5		
25	2695	CRON	8	0851.5	0852	1.5	12.0	4.0		
	2695	CANR	8	0852	0853	2.5	14.0	5.0		
	2695	CRON	8	1027	1027.5	2.5	25.0	5.0		
	2800	OTTA	20	1315 E	1340	60 D	3.6			
	2800	OTTA	22	1417	1424	23	1.2	0.6		
	2800	OTTA	20	1450	1500	20	1.0	0.5		
	2800	OTTA	20	1547	1600	10	1.6	0.6		
	2800	OTTA	27	1558		232	2.4	1.8		
	2800	OTTA	24	1558	1615	17	2.4	1.8		
	2800	OTTA	24	1615		115	2.4			
	2800	OTTA	26	1810	1810	100	2.4	1.2		
26	2695	MANI	1	0107.2	0107.6	2.5	4.5	.9		
	2695	CRON	45	0551.5	0554	10	39.0	11.0		
	2695	MANI	4	0551.2	0554	10	47.0	10.4		
	2695	CRON	8	0703.5	0705	4.5	45.0	13.0		
	8800	MANI	4	0705.4	0705.7	3.6	38.2	9.5		
	2695	MANI	4	0705.4	0705.5	3.6	46.1	4.4		
	2695	CANR	45	0956.5	0957.5	5.5	4.0	1.0		
	2695	CANR	45	1100	1105.5	10.5	10.0	3.0		
	2695	CANR	8	1148	1149	3.5	32.0	11.0		
	2800	OTTA	23	1335	1341	27	3.4	1.4		
	2695	CANR	45	1337	1350.5	24	20.0	4.0		
	2800	OTTA	4	1345	1350	17	17.6	4.4		
	2695	SGMR	4	1348.2	1349.5	5.8	14.9	4.5		
	2800	OTTA	27	1424		85	.8	0.7		
	2800	OTTA	24	1424	1425	1	.8	0.4		
	2800	OTTA	24	1425		76	.8			
	2800	OTTA	4	1426.8	1428	3	14.2	6.8		
	2800	OTTA	30	1429.8	1429.8	15	1.6	0.8		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

NOVEMBER 1973

NOV. 1973	FREQUENCY STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2695 BOUL	8	1427.5	1428	2	10.0	3.0		
	8800 SGMR	4	1427.1	1428.9	4.6	34.4	10.3		
	8800 SGMR	29	1431.7	1431.7	14.3	4.2	2.1		
	2695 SGMR	4	1427	1428	4	13.2	4.0		
	2695 SGMR	29	1431	1431	30	2.4	1.2		
	2695 CANR	8	1428	1429	3	13.0	4.0		
	2800 OTTA	2	1433	1434.5	3	2.4	1.2		
	8800 SGMR	4	1520.4	1521.9	9.6	21.4	6.4		
	2695 SGMR	46	1520.4	1520.7	12.2	62.7	28.2		
	2695 SGMR	46		1521.3		93.9			
	2695 BOUL	45	1521	1522.5	10	61.0	18.0		
	2695 CANR	45	1521	1522	12.5	102.0	37.0		
	2800 OTTA	4	1521	1521.5	3.5	30.0	14.0		
	2800 OTTA	30	1524.5	1524.5	10	3.6	1.8		
	2800 OTTA	1	1525.5	1526	1.5	2.8	1.0		
	2800 OTTA	26	1541	1541	8	.8	0.4		
	2800 OTTA	23	1627	1712	200	2.4	1.4		
	2695 PENT	1	1649	1652	8	2.0	1.0		
	2695 BOUL	45	1725	1729.5	4.5	146.0	48.0		
	2695 BOUL	8	1954.5	1955.5	2	6.0	2.0		
	2695 PENT	2	1954.6	1955	1.5	2.0	1.0		
	2800 OTTA	2	1954.6	1955	1.5	2.0	1.0		
	2695 CRON	3	2328.5	2330.5	3.5	7.0	2.0		
	2695 MANI	1	2328.3	2331.2	4.7	5.5	.9		
27	2695 CRON	45	0122	0122.5	3	6.0	2.0		
	2695 MANI	20	0123	0123.8	15	5.5	.9		
	2695 CRON	45	0308.5	0311.5	10	29.0	12.0		
	2695 MANI	4	0309.8	0312	8.8	29.1	7.3		
	2800 OTTA	8	1822	1822.8	1	4.2			
	2800 OTTA	1	1904	1904.8	2.5	2.0	1.0		
28	2695 CANR	3	0806	0807.5	2.5	8.0	2.0		
	2695 CANR	3	0827.5	0828.5	3.5	5.0	2.0		
29	2800 OTTA	20	1452	1507	30	1.6	0.8		
	2800 OTTA	20	1950	1952	10	1.6	0.8		
30	2695 CRON	45	0913.5	0917.5	5.5	10.0	3.0		
	2695 CANR	45	0914	0919	7.5	13.0	3.0		
	2800 OTTA	2	1323.5	1325.5	5.5	9.6	2.8		
	2695 CANR	3	1325.5	1327	3.5	6.0	2.0		
	2800 OTTA	20	1435	1700	300	3.4	2.0		
	2800 OTTA	21	1946	2008	110	6.8	4.0		
	2800 OTTA	3	1947	1948.3	2.5	23.4	11.7		
	2800 OTTA	30	1949.5	1949.5	8.5	5.8	2.9		
	2695 BOUL	45	1948	1949	5	21.0	6.0		
	2800 OTTA	1	1950.5	1951	2.5	2.6	1.9		

Observatories:

BOUL = Boulder CRON = Carnarvon OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
CANR = Canary Islands MANI = Manila

Explanation of Type Code:

1 Simple 1 6 Minor 22 Simple 3F 27 Rise and Fall 32 Absorption 44 Noise storm in Progress
2 Simple 1F 7 Minor + 23 Simple 3AF 28 Precursor 40 Fluctuation 45 Complex
3 Simple 2 8 Spike 24 Rise 29 Post Burst Increase 41 Group of Bursts 46 Complex F
4 Simple 2F 20 Simple 3 25 Rise A 30 Post Burst Increase A 42 Series of Bursts 47 Great Burst
5 Simple 21 Simple 3A 26 Fall 31 Post Burst Decrease 43 Onset of Noise Storm 48 Major
49 Major +

PIONEER VI

NOVEMBER 1973

Date Nov. 1973	Time (UT)	ESP (°)	Solar Wind[1]		Cosmic Ray Protons[2] (particles/sec)		
			U_{H^+} (km/sec)	TAU (Days)	0.6-13 Mev*	13-175 Mev**	>175 Mev
16	0900	-124.5	506	-8.97	0.037	0.093	1.03
			MIT[3]				
			U_{H^+} (km/sec)	N_{H^+} (H^+/cc)			
16	0900		525	10.5			

[1] Wolfe - NASA/ARC
[2] Simpson - University of Chicago
[3] Lazarus - MIT

* Includes He 0.6-13 Mev/nucleons and electrons ∿0.5 Mev - see J. Retzler and J. A. Simpson, J. Geophys. Res., 74, 9, 2149-2160, 1969 for discussion of the electron response of Pioneer VII.

** Includes He >13 Mev/nucleons.
Q used to indicate that a rate is at its quiescent level.

Note: The notes published with the March 1972 data continue to apply to the current data.

ESP = Earth-Sun Probe Angle.

PIONEER IX

NOVEMBER 1973

DATE Nov. 1973	TIME (UT)	ESP (°)	SOLAR WIND[1] U_{H^+} (km/sec)	N_{H^+} (H^+/cc)	T_{H^+} (x10⁶°K)	TAU (Days)	IP E-FIELD[2] 400 Hz (mv)	IP MAGNETIC FIELD[3] /B/ (Gamma)	φ (°)	Condition	COSMIC RAY PROTONS[4] (particles/sec) >13.9 Mev	>40 Mev
2	2000	-038.7	533	---	---	-2.83	0.293	4.8	098	disturbed	6.1	1.14
3	1000	-038.6	461	---	.022	-2.81	0.171	11.3	020	disturbed	39.1	1.28
4	1700	-038.6	407	---	---	-2.79	0.188	9.9	139	quiet	7.	--
	2100		418	---	.055		0.263				10.	--
6	1000	-038.6	499	---	.068	-2.8	0.299	5.7	328	quiet	6.	--
7	0200	-038.6	525	---	---	-2.8	0.144	6.3	354	very quiet	7.	--
	0600		517	---	---		0.171	6.6	007	very quiet	8.	--
	1700		472	---	---		0.148	6.2	359	very quiet	6.	--
8	1800	-038.5	533	---	---	-2.79	0.14	9.9	302	quiet	6.	--
9	1000	-038.5	591	---	---	-2.8	0.163	7.1	326	quiet	6.31	1.17
12	1800	-038.5	482	---	.055	-2.76	0.225	3.8	301	quiet	6.77	--
14	0100	-038.5	494	---	---	-2.75	0.198	4.	306		6.32	1.11
	0500		444	---	.047		0.155	5.5	222	disturbed	6.37	1.18
	1600		444	---	---		0.184	3.6	329		6.36	1.36
21	0100	-038.6	483	---	.099	-2.72	0.14	3.4	083	disturbed	6.74	1.31
	0500		422	---	.139		0.178	3.7	058		6.69	1.13
28	0100	-038.9	617	---	.147	-2.74	0.322	6.1	131	very quiet	6.55	1.31
	0500		577		.244		0.251	5.2	163	sl. disturbed	6.44	1.17

[1] Wolfe - NASA/ARC
[2] Scarf - TRW, Inc.
[3] Sonett and Colburn - NASA/ARC
[4] Webber - Univ. of N.H.

ESP = Earth-Sun Probe Angle.

INFERRED IP MAGNETIC FIELD

BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1893	1971 DEC 20	T	A	A	A	A	A	A	A	T	T	T	T	–	T	T	T	T	T	T	T	T	T	T	–	T	T	T
1894	1972 JAN 26	T	A	A	A	A	T	T*	T	T	T	T	T	T	T	T	T	T	A	A	A	T	T	T	T	T	TA	A
1895	FEB 12	A	T	A	A	A	A	T	T	T	TA	A	–	A	T	T	T	T	TA	A	T	T	T	T	T	TA	A	A
1896	MAR 10	A	A	A	A	A	A	A	A	A	A	A	T	A	T	T	T	T	A	A	T	T	T	T	T	T	A	A
1897	APR 6	A	T	T	A	T	T	T	T	T	T	T	T	T	A	T	T	A	A	A	A	A	–	A	A	T	TA	A
1898	MAY 3	A	A	A	–	A	T	T	T	T	T	T	T	T	A	A	T	A	A	A	A	A	T	A	T	T	A	T
1899	MAY 30	A	A	*	A	A*	T	T	A	T	T	T	A	–	–	–	–	–	T	–	A	A	T	T	T	T	TA	A
1900	JUN 26	A	A	A	A	A	A	A	AT	T	T	T	TA	A	T	T	A	A	A*	A*	A	T*	T	T	T	T	T	TA
1901	JUL 23	A*	A*	A*	A	A	A	A	A*	T	T	A	A	A	–	A	T	T	T	T	T	A	T	T	T	T	A	–
1902	AUG 19	–	–	A	A	A	A	A	T	A	A	A	A	T	A	A	A	T	T	T	T	A	A	T	A	A	A	–
1903	SEP 15	A	T*	A	A	A	A	A	T	A	A	A	–	–	–	–	–	T	T	T	T	T	–	T	A	A	A	T
1904	OCT 12	T	–	–	A*	T	T	T	A	A	T	A	A	A	A	A	AT	T	AT	T*	T	–	A*	AT	T	T	*	A
1905	NOV 8	A	A	A	AT	AT	AT	T	T*	A	A	A*	AT	A	A	AT	T	T	TA	T	T	T	A	A	A	A	AT	T
1906	DEC 5	T	T	AT	–	–	T	T	AT	–	T	T	A	–	–	T	TA	A	T	T	T	A*	T	T	T	T	AT	T
1907	1973 JAN 1	T	T	T	T	T	T	T	–	AT	T	–	–	TA	A	A	A	A	A	T	–	–	T	–	T	–	T	T
1908	JAN 28	T	A	T	T	T	T	T	T	A	TA	A	A	AT	TA	AT	TA	AT	–	A	A	T	T	T	T	T	T	T
1909	FEB 24	T	T	TA	T	T	–	TA	A	A	T	A	A	A	AT	A	A	A	TA	A	A	TA	A	A	T	T	T	T
1910	MAR 23	T	T	T	A	T	T	T	TA	A	TA	A	A	–	A	A	TA	A	A	AT	T–	–	T	T	T	T	T*	T*
1911	APR 19	T	AT	T-	T	T	T	A	T	T	TA	A	A	A*	A	AT	TA	A*	T	A	TA	T*	AT	A	T	A	T	A*
1912	MAY 16	T	T	T	T	T	T	TA	T	A	AT	T	A	A	A	A	A	A*	A	A	A	A	T*	-A	A	–	T	T
1913	JUN 12	T*	T	–	T	T*	A	T	T*	T*	T	T	AT	A	A	T	–	T	A	A	A	A*	AT	–	T	A	A	T
1914	JUL 9	T	T	A	T	T	A	T*	T*	A	AT	–	A	T	TA	T	T	T	A	A*	A	A*	TA	A	TA	T*	T*	T
1915	AUG 5	T	A	A	AT	A	T	T*	T	*	AT	T	AT	T	A	TA	T	T	A	A	AT	A*	AT	A	A	TA	A*	A
1916	SEP 1	TA*	T	T	AT	A	TA*	A	*	T	T	T	A	A	A	T	T	T	A	T	A	A*	A	T*	A	A	A*	A
1917	SEP 28	A*	A	AT	T	A	A	A	A	A*	T*	AT	T	T	T*	T	T*	T*	T	A	T	A*	A	A	T	A	T	T
1918	OCT 25	T	T	TA	A	T	T*	A	A	A	A	A	T	T	T	T	T	TA	T	T	*	A	A	A	TA	T	–	
1919	NOV 21	*	T	–	A	A	T	T	T*	TA	A																	

Inferred IP Magnetic Field

The table shows daily inferences of the polarity of the interplanetary magnetic field made from magnetograms produced by a tri-axis magnetometer located at the Thule Geopole Station of the Air Weather Service. The inference relies on the discoveries of Mansurov (Geomagn. Aeron., 9, 622-623, 1969) and Svalgaard (Geophys. Pap. R-6, 11 pp., Dan. Meterol. Inst., Copenhagen, 1968) relating the variation of the polar cap magnetic field to the polarity of the interplanetary field. It was originally believed that the radial component (BXM in Geocentric Solar Magnetospheric coordinate system) of the IP field determined the effect observed in the polar cap field, but recent evidence (Friis-Christensen, et al., J. Geophys. Res., 77, 371, 1972) indicates the responsible component may be BYM, the component in the ecliptic plane perpendicular to BXM. As long as the IP field remains in a normal Archimedes spiral, the variation in sign of BYM maps one-to-one with the variation of sign of BXM.

The notation adapted for the table is that BXM>0 (BYM<0) is represented by the symbol A (away from the sun) and BXM<0 (BYM>0) is represented by the symbol T (toward the sun). A day with two polarities indicates that an inferred change of sign occurred during the interval approximately 1200 UT to 2000 UT, when the effect is observable at Thule. An asterisk along with an A or T indicates days when the effect was somewhat doubtful, but one polarity seemed predominant. An asterisk alone indicates days when no clear polarity effect could be discerned. A dash indicates days when missing data prevented inference of the polarity.

OCTOBER 1973 DATA

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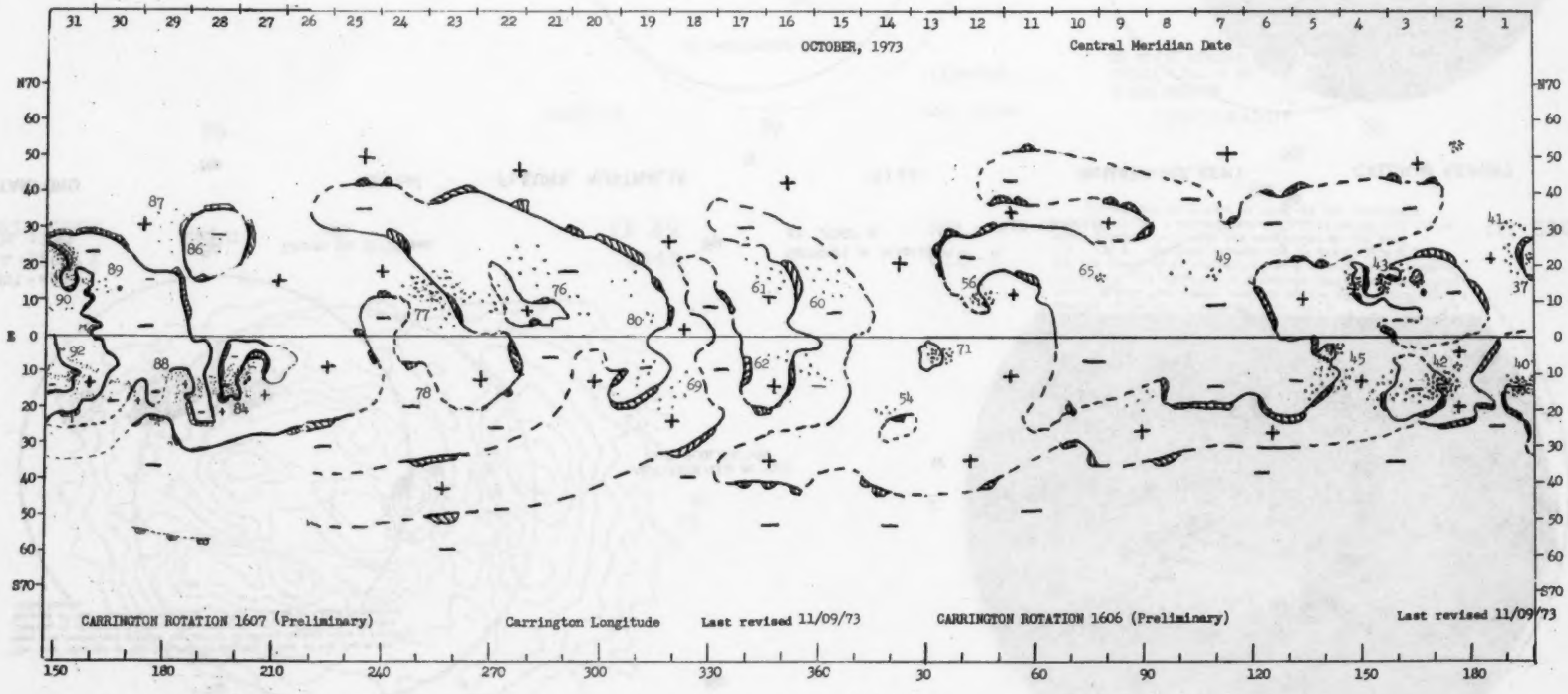
For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

Hα SYNOPTIC CHARTS

OCTOBER 1973



23 Oct 73

OCTOBER 1, 1973 (P = 26.02, B_o = 6.71, L_o = 196.54)

NASA GSFC
OSO-7

X-RAY
8-16A

Np

The tape recorder on OSO-7 failed in mid-May. Some of EUV and X-ray maps are incomplete because the period of direct contact with a tracking station is of short duration. The total counts given may also be low because of the incomplete coverage or high because of added background noise levels.

E W

COUNT = 4328
ROLL = 20.0°
P-TH = 2.83

Sp
1623 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

NOT RECEIVED IN TIME
FOR PUBLICATION

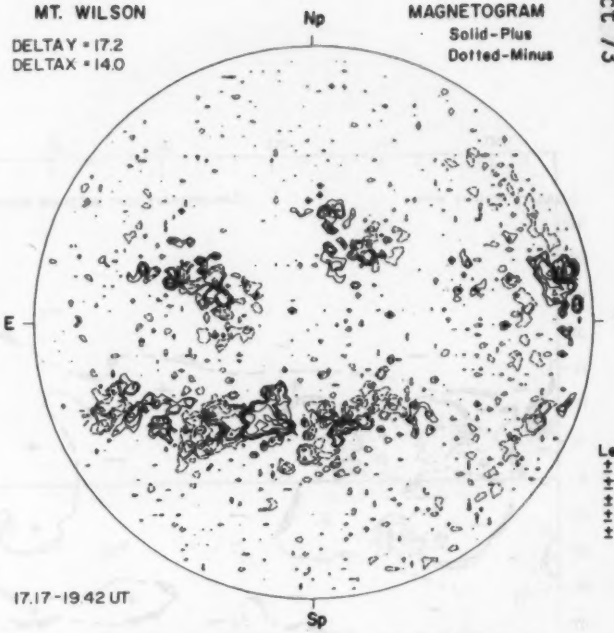
Sp

Contours in intervals
of 200° K

MT. WILSON

DELTAY = 17.2
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

17.17-19.42 UT

STANFORD

9.1 cm

Np

Operation of the Stanford Microwave Spectroheliograph ceased August 31, 1973. The first map of the series was for July 4, 1959. Virtually gap-free data exist from 1964. These maps have been published in *Solar-Geophysical Data* from April 1960. Each year the data were placed on a 600 foot 9 track reel of magnetic tape and are available from R. N. Bracewell, Radio Science Laboratory, Stanford University, Stanford, California 94305.

E W E

LOWEST CONTOUR = 40,000° K CONTOUR INTERVAL = 10,000° K

Sp
20-21 UT

Brightness Unit 5,000° K

FLEURS, AUSTRALIA

21 cm

N

NO DATA

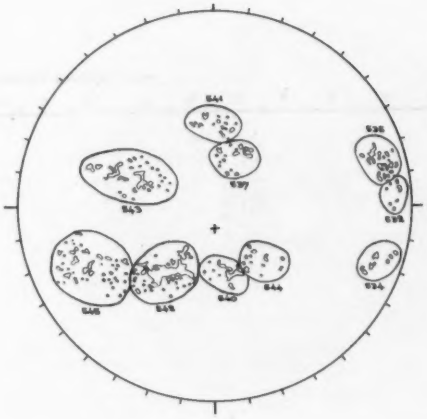
S
02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

Np



POOR	B
32 - 0900	- 3.0
35 - 2200	- 3.0
37 - 0700	- 2.5
37 - 0700	- 2.5
40 - 1000	- 3.0
42 - 3500	- 3.5
43 - 1500	- 2.5
45 - 2500	- 2.5

Sp
1740 UT

Sp

20-21 UT

Brightness Unit 5,000° K

02-03 UT

Resolution 3 Minutes of Arc

Brightness Unit 1,700° K

Sp

1740 UT

BOULDER

01

Np

Hα

E

NO DATA

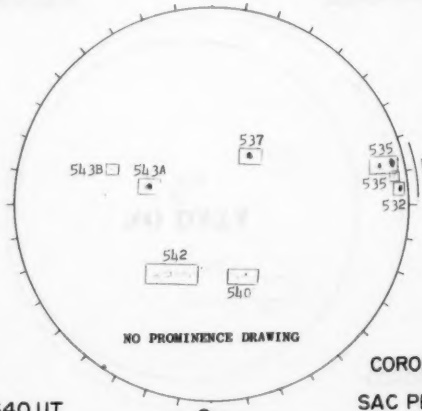
W

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

SAC PEAK

1640 UT

Sp

NRL

OSO-7

Np

WHITE-LIGHT

CORONA

E

W

1207-1443 UT

Sp

NASA GSFC

OSO-7

Np

FE XV

284A

E

W

COUNT = 71847

ROLL = 20.0°

P-TH = 2.83

1623 UT

Sp

No

NRL

OSO-7

171-630A

During the early part of June the NRL instrument began to suffer a gradual disintegration of the XUV filter which previously limited the wavelength to the band 170 - 630 Å. The band extends now to nearly 1600 Å, and the XUV image is diluted mainly with chromospheric Lyman-α radiation. The contrast is therefore lower and the intensity counts higher. No count is given when a maximum has been reached resulting in computer overflow.

E

W

1620 UT

COUNT = 286020

Sp

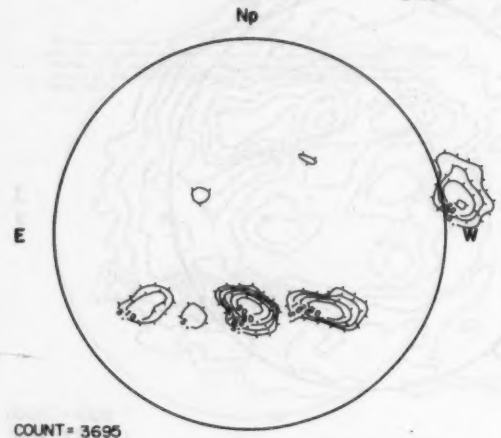
25 Oct 73

OCTOBER 2, 1973 (P = 26.08, B_o = 6.66, L_o = 183.35)

Oct 73 26

NASA GSFC
OSO-7

X-RAY
8-16A



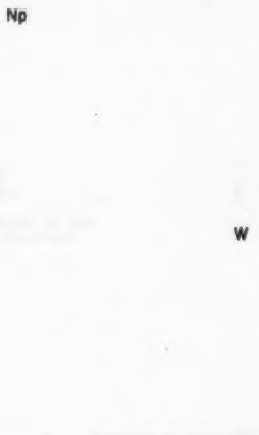
COUNT = 3695
ROLL = 19.2°
P-TH = 2.95

1649 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

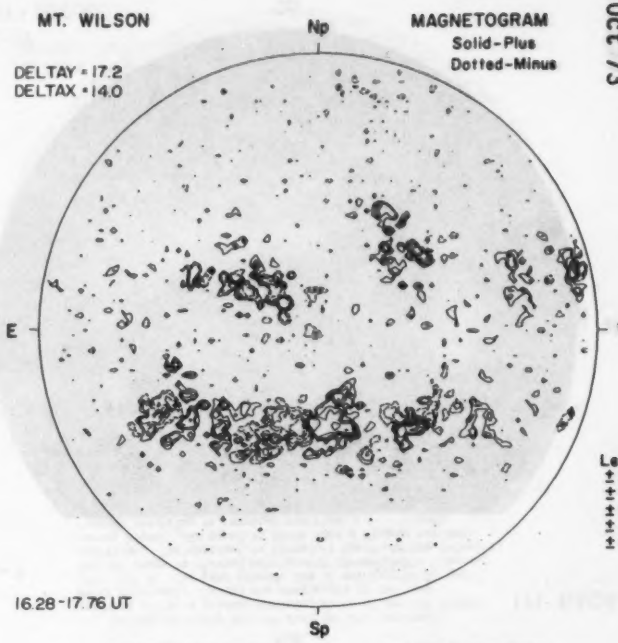


Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 17.2
DELTAX = 14.0

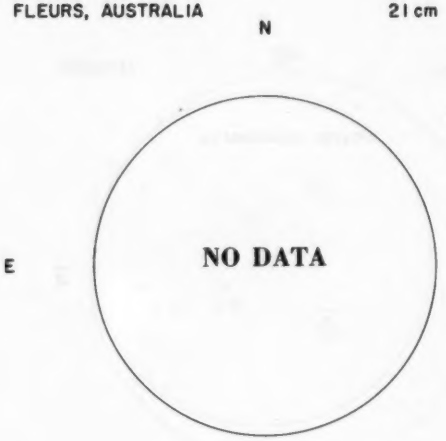


Levels
±5
±10
±20
±40
±80

16.28-17.76 UT

FLEURS, AUSTRALIA

21 cm

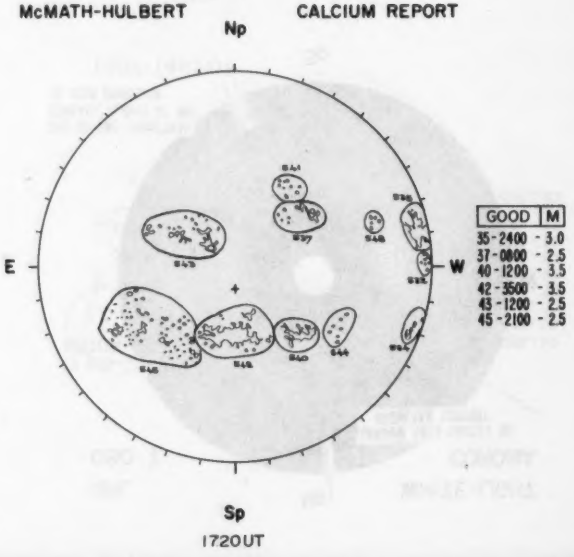


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



GOOD	M
35-2400	3.0
37-0800	2.5
40-1200	3.5
42-3500	3.5
43-1200	2.5
45-2100	2.5

1720 UT

S

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp

1720 UT

BOULDER
02

Np

Hα

E

W

1429 UT

Sp

BOULDER

Np

SUNSPOTS

537

535

543A

542

540

E

W

1715 UT

Sp

CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

1231-1508 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A

NRL
OSO-7

171-630A

E

W

COUNT = 65936
ROLL = 19.2°
P-TH = 2.95

1649 UT

Sp

E

W

1646 UT
COUNT = 292314

Sp

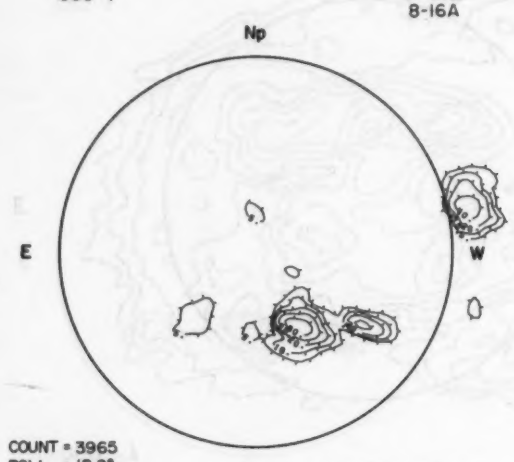
27
Oct 73

OCTOBER 3, 1973 (P = 26.14, B_o = 6.61, L_o = 170.15)

28 Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3965
ROLL = 18.2°
P-TH = 3.06

1537 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

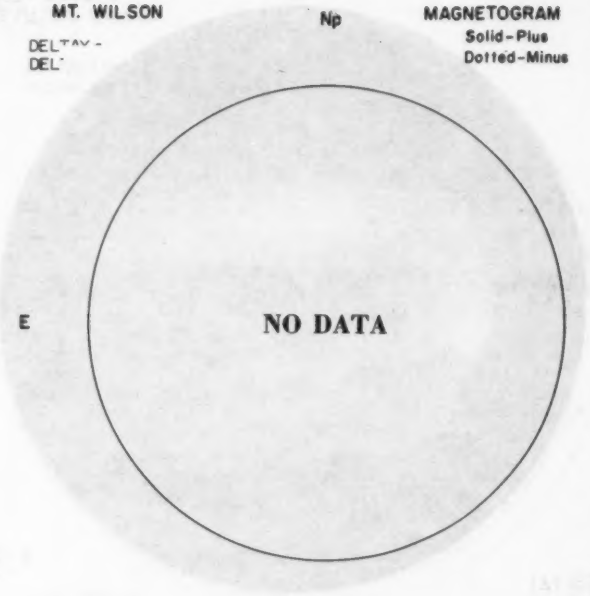
8.6 mm

Contours in intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAV -
DEL



Levels
±5
±10
±20
±40
±80

FLEURS, AUSTRALIA

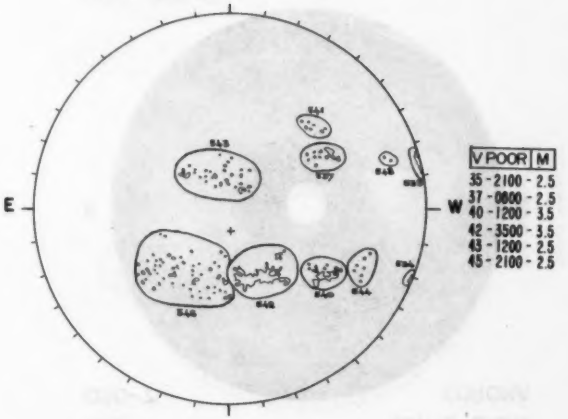
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



V POOR	M
35 - 2100 - 2.5	
37 - 0800 - 2.5	
40 - 1200 - 3.5	
42 - 3500 - 3.5	
43 - 1200 - 2.5	
45 - 2100 - 2.5	

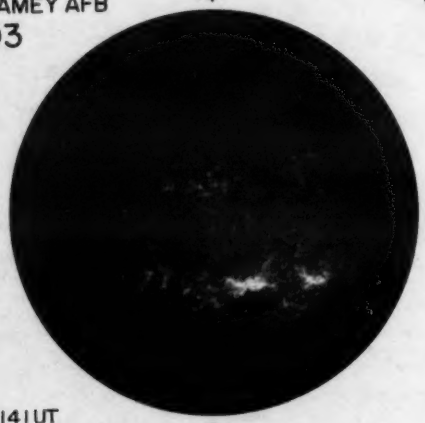
1330 UT

02-03 UT Brightness Unit 1,700° K 1330 UT

RAMEY AFB
03

Np

Hα



E W

Sp

1141 UT

NO DATA

NRL
OSO-7

WHITE-LIGHT
CORONA

E W

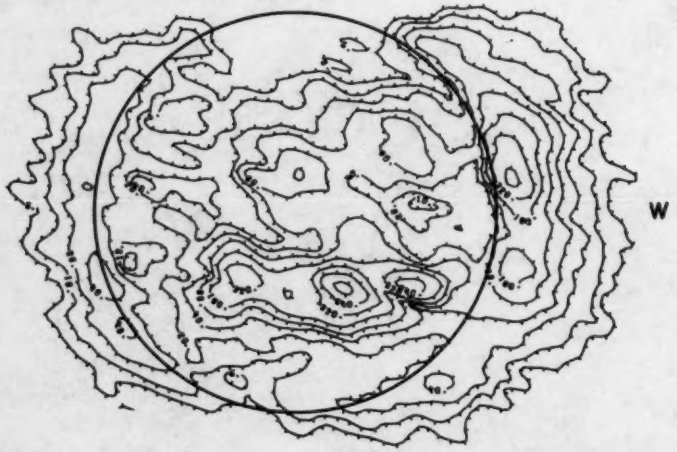
Sp

1125-1357 UT

NASA GSFC
OSO-7

Np

FE XV
284 A



E W

Sp

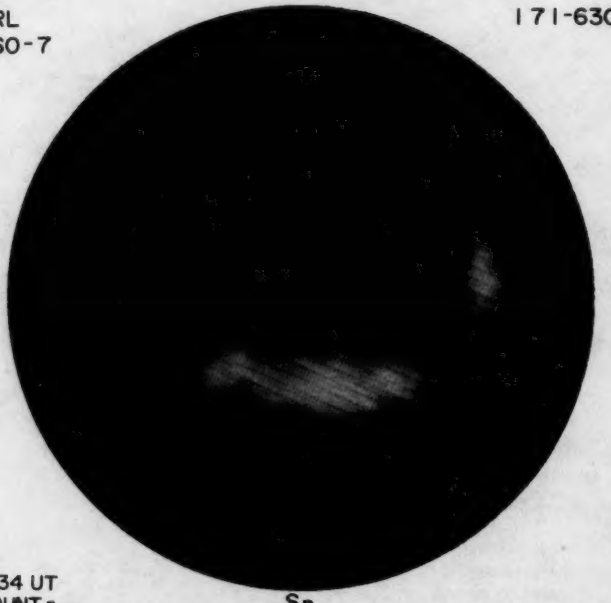
1537 UT

COUNT = 61003
ROLL = 18.2°
P-TH = 3.06

Np

NRL
OSO-7

171-630A



E W

Sp

1534 UT
COUNT = ---

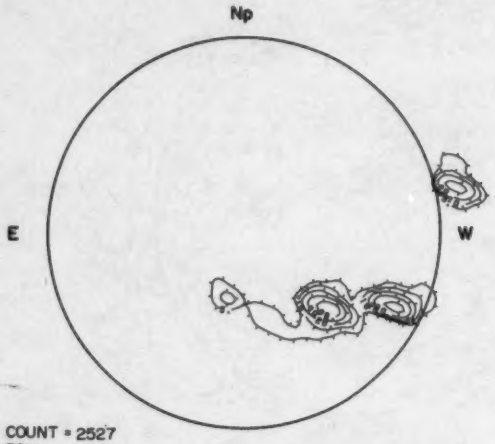
29
Oct 73

OCTOBER 4, 1973 (P = 26.19, B_o = 6.56, L_o = 156.96)

30 Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



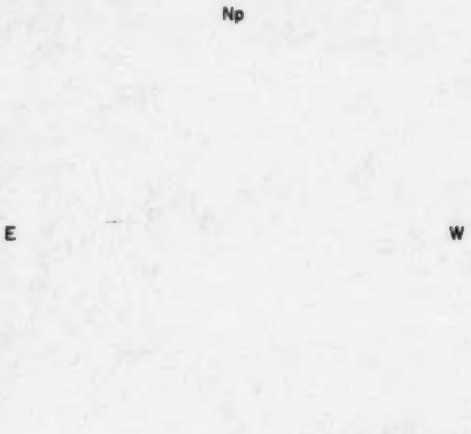
COUNT = 2527
ROLL = 17.6°
P-TH = 3.15

1008 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

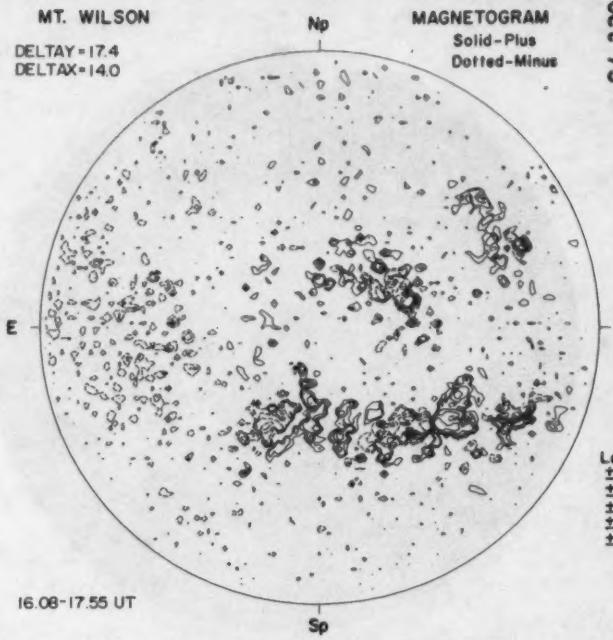


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid - Plus
Dotted - Minus



Levels
±5
±10
±20
±40
±80

16.08-17.55 UT

FLEURS, AUSTRALIA

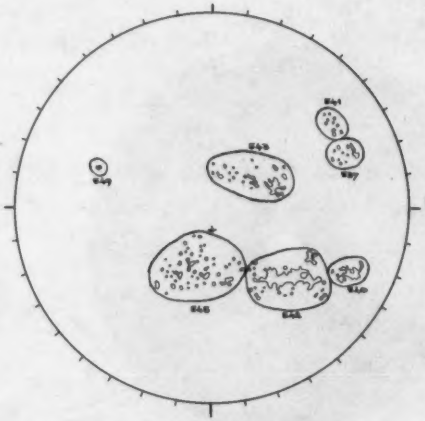
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	M
40-1100	3.5
42-3500	3.5
45-1200	2.5
45-1800	2.5

1750 UT

RAMEY AFB

Hα

BOULDER

SUNSPOTS

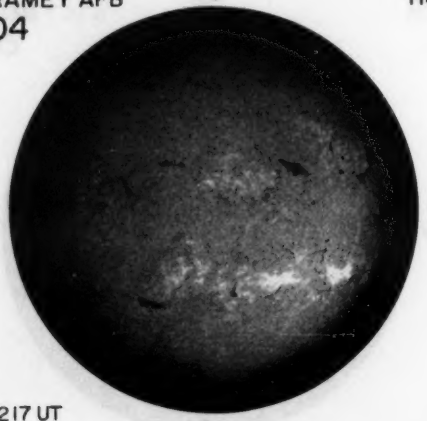
NRL

WHITE-LIGHT

RAMEY AFB
04

Np

Hα



E

W

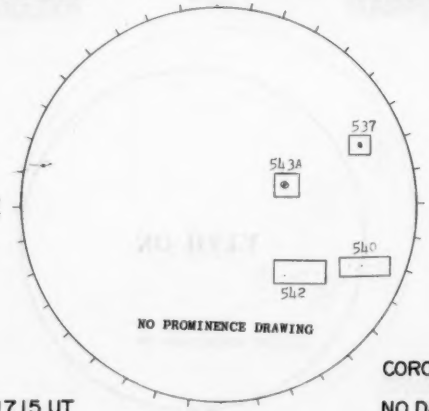
Sp

1217 UT

BOULDER

Np

SUNSPOTS



E

W

Sp

1715 UT

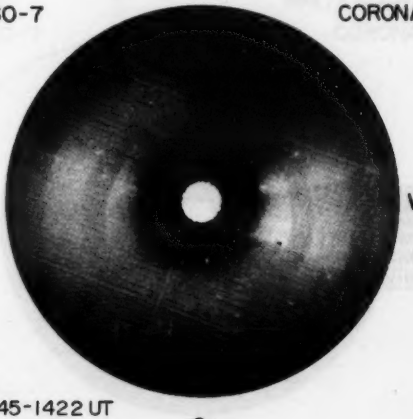
CORONA

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

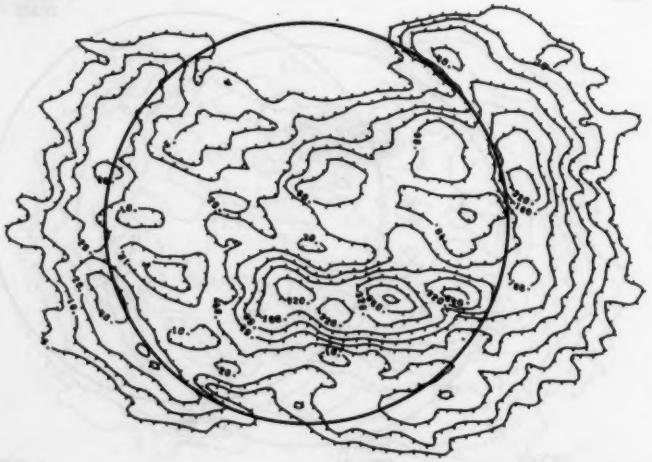
Sp

1145-1422 UT

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

Sp

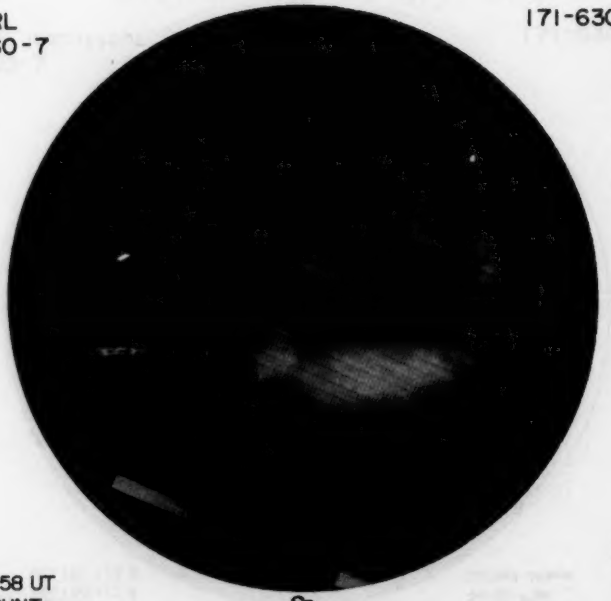
1008 UT

COUNT= 56002
ROLL = 17.6°
P-TH = 3.15

NRL
OSO-7

Np

171-630A



E

W

Sp

1558 UT
COUNT= ---

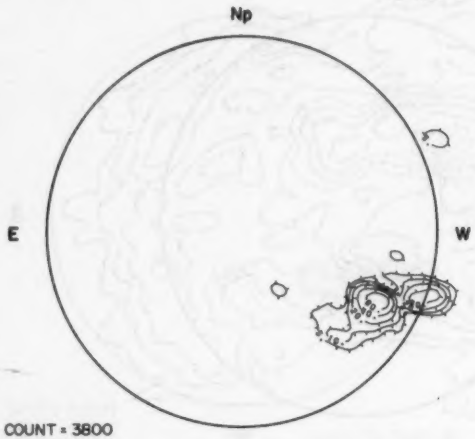
31
Oct 73

OCTOBER 5, 1973 (P = 26.23, B_o = 6.50, L_o = 143.76)

32
Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3800
ROLL = 16.9°
P-TH = 3.28

1450 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

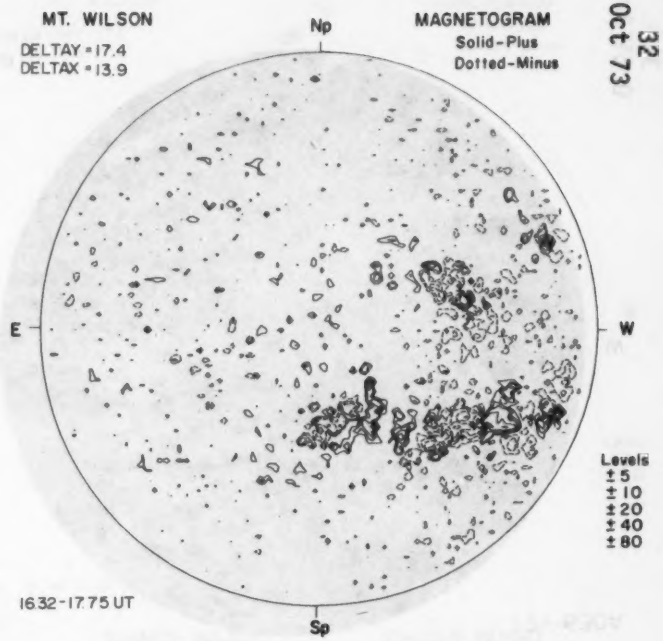
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 13.9

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

1632-1775 UT

FLEURS, AUSTRALIA

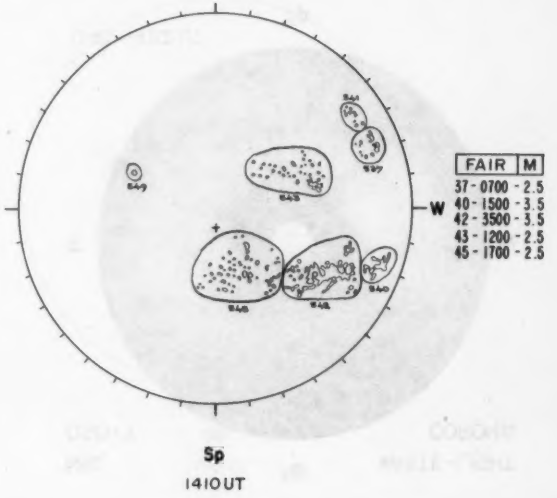
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1410 UT

02-03 UT Brightness Unit 1,700° K

1410 UT

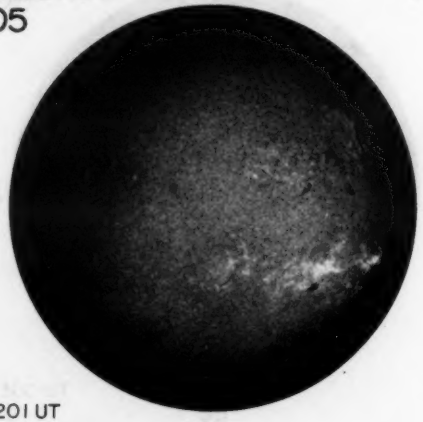
RAMEY AFB
05

Np

Hα

E

W



1201 UT

Sp

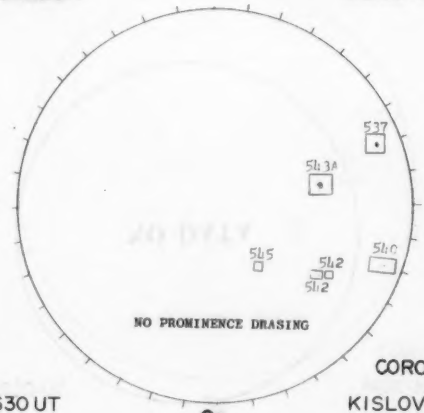
BOULDER

Np

SUNSPOTS

E

W



1630 UT

Sp

CORONA
KISLOVODSK

NRL
OSO-7

WHITE-LIGHT
CORONA

E

W

1138-1310 UT

Sp

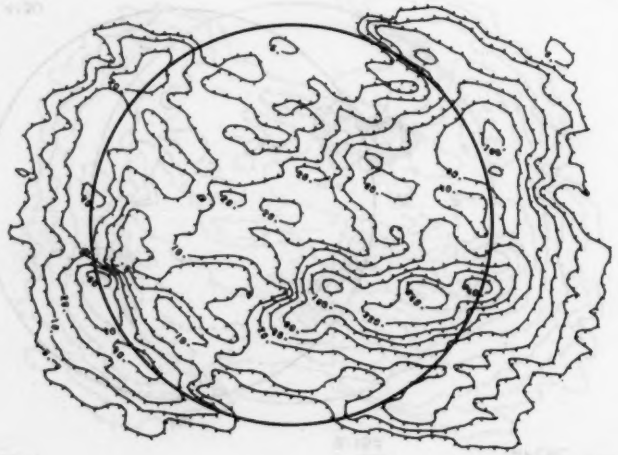
NASA GSFC
OSO-7

Np

FE XV
284A

E

W



1450 UT

Sp

COUNT= 46047
ROLL = 16.9°
P-TH = 3.28

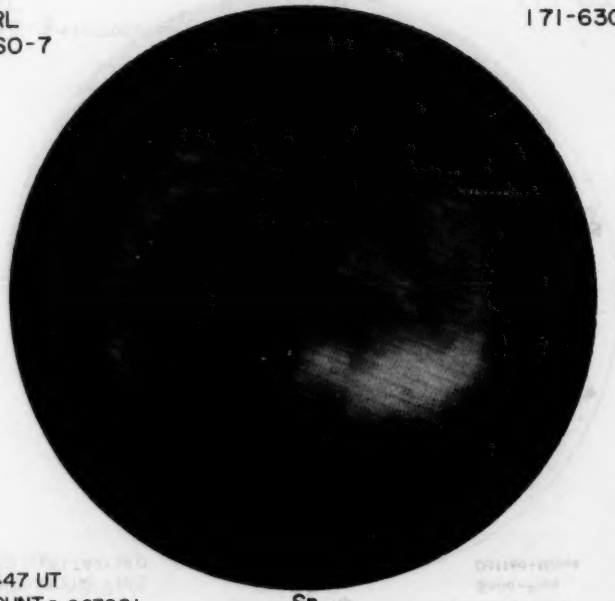
NRL
OSO-7

Np

171-630A

E

W



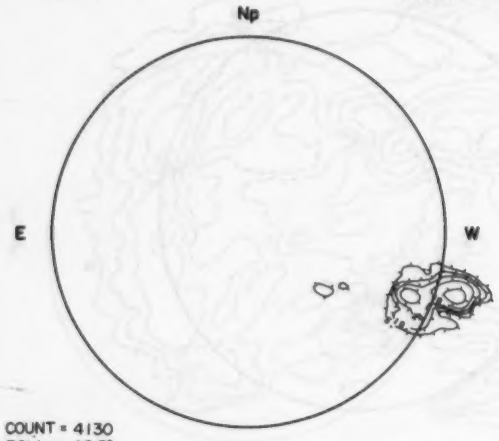
1447 UT
COUNT = 263221

Sp

OCTOBER 6, 1973 (P = 26.27, B_o = 6.44, L_o = 130.57)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 4130
ROLL = 16.5°
P-TH = 3.38

1338 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

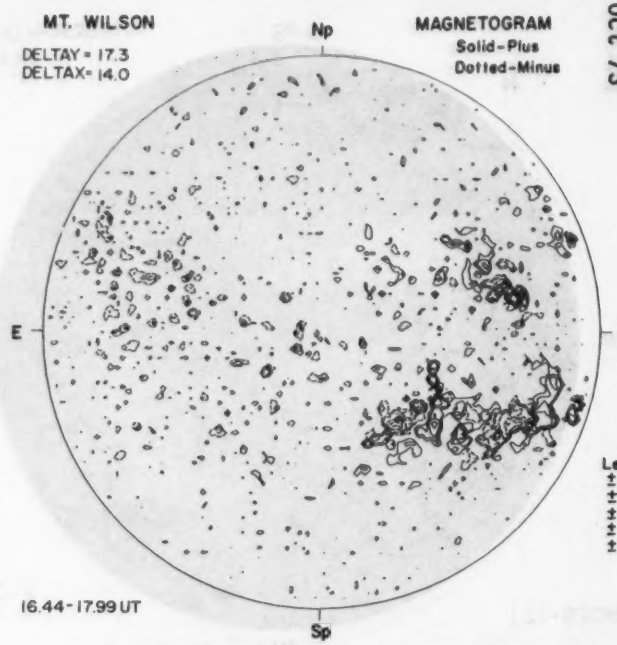
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.3
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

16.44-17.99 UT

FLEURS, AUSTRALIA

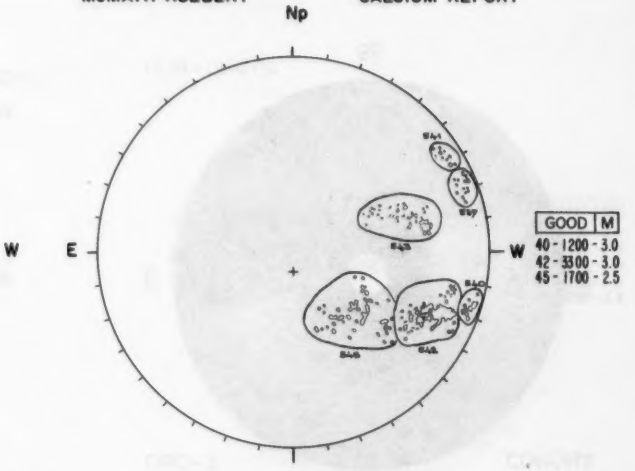
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1315 UT

RAMEY AFB

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

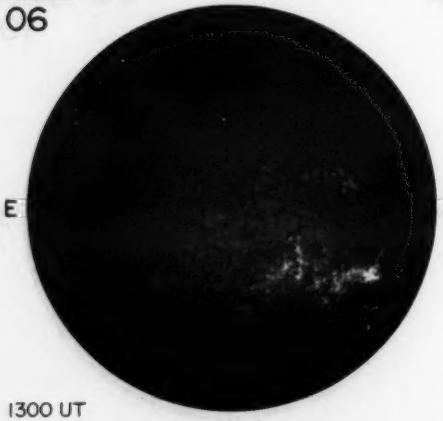
Np

WHITE-LIGHT

RAMEY AFB
06

Np

Hα

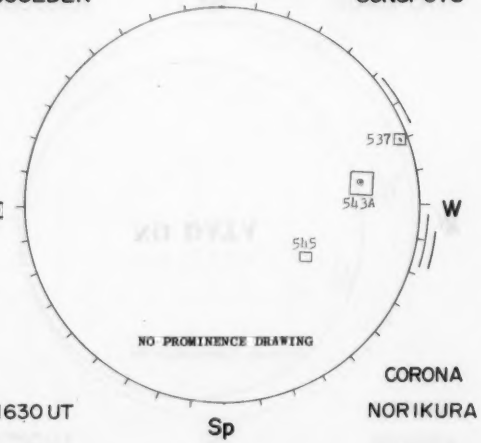


1300 UT

BOULDER

Np

SUNSPOTS



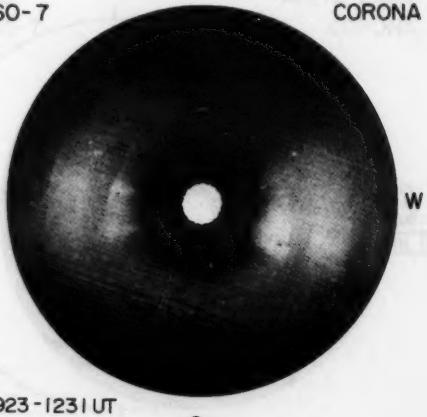
1630 UT

CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

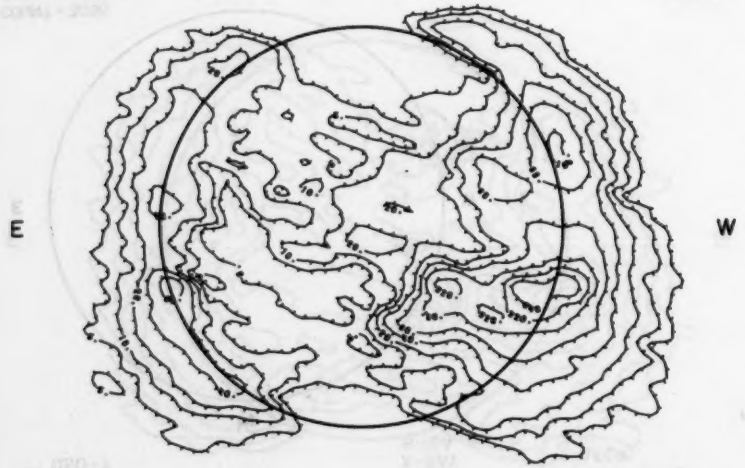


0923-1231 UT

NASA GSFC
OSO - 7

Np

FE XV
284A



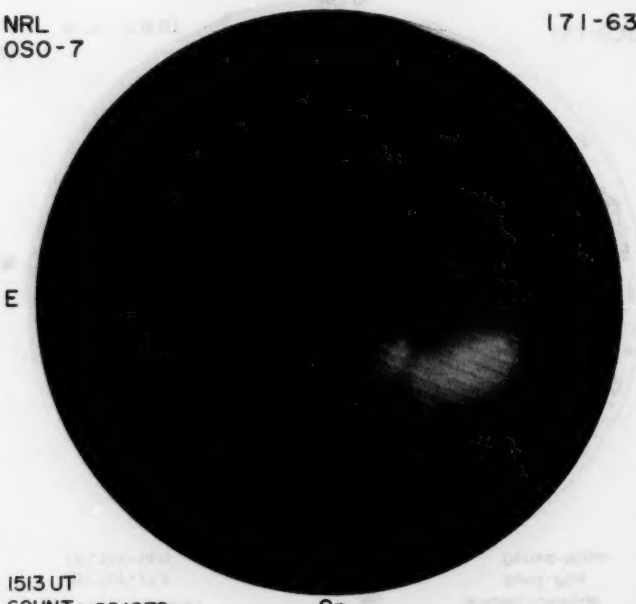
1338 UT

COUNT = 43807
ROLL = 16.5°
P-TH = 3.38

NRL
OSO-7

Np

171-630A



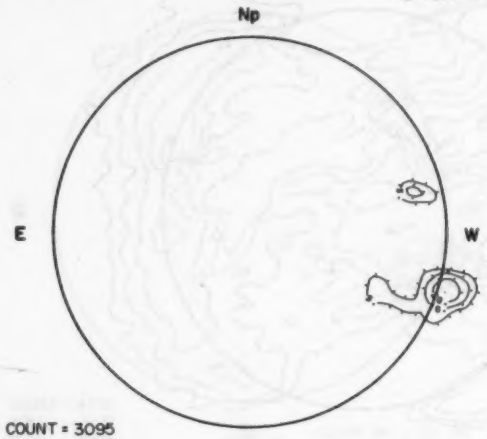
1513 UT
COUNT = 281979

35
Oct 73

OCTOBER 7, 1973 (P = 26.29, B_o = 6.39, L_o = 117.38)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3095
ROLL = 16.0°
P-TH = 3.50

1404 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

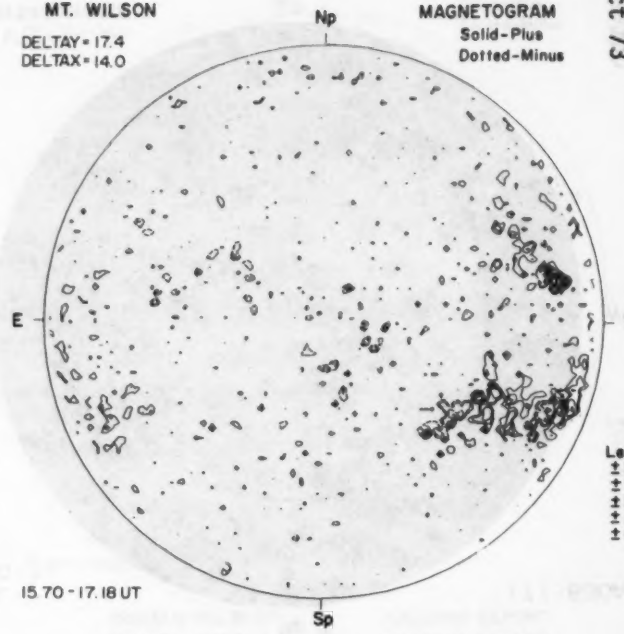
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.70 - 17.18 UT

FLEURS, AUSTRALIA

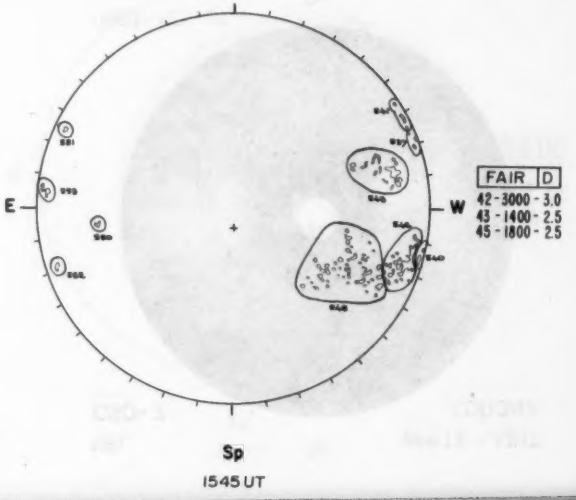
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1545 UT

RAMEY, AFB

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

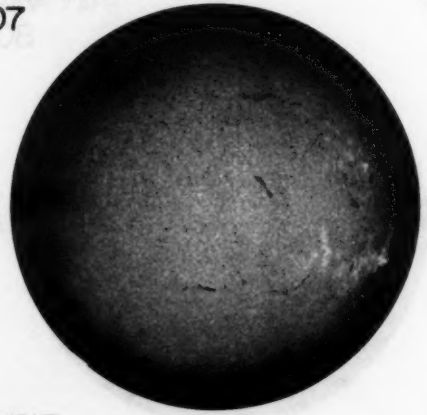
WHITE-LIGHT

02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K 1545 UT

RAMEY AFB
07

Np

Hα



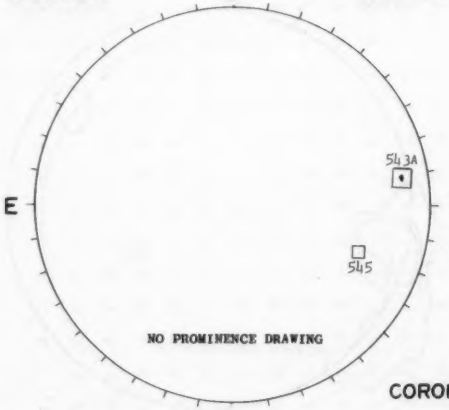
1125 UT

Sp

BOULDER

Np

SUNSPOTS



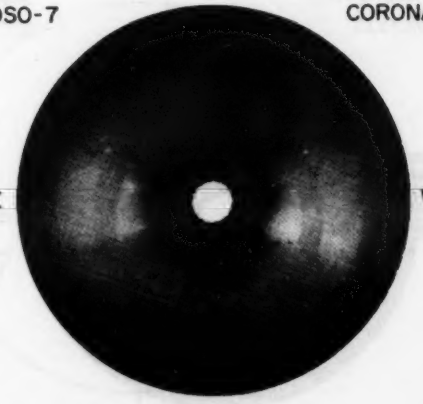
CORONA
NO DATA

1750 UT

Sp

NRL
OSO-7

WHITE-LIGHT
CORONA



0946-1255 UT

Sp

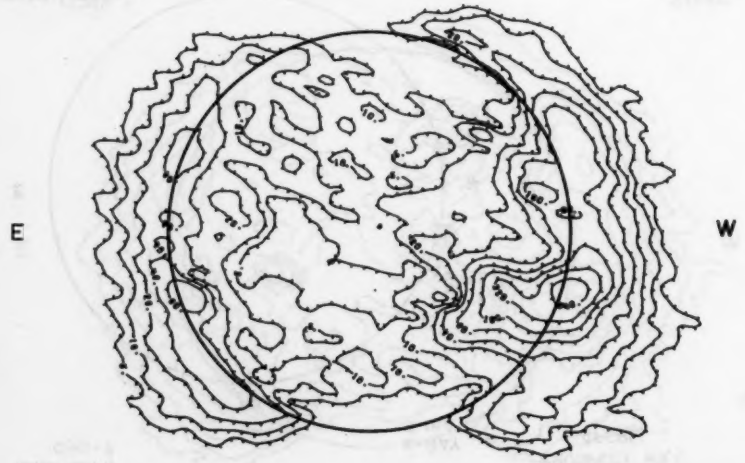
Np

171-630A

NASA GSFC
OSO-7

Np

FE XV
284A



COUNT = 37312
ROLL = 16.0°
P-TH = 3.50

1404 UT

Sp

NRL
OSO-7

COUNT =

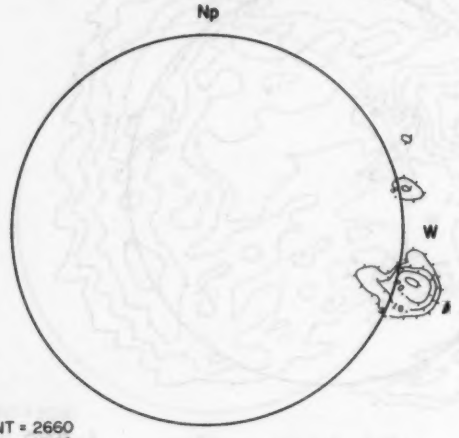
Sp

37
Oct 73

OCTOBER 8, 1973 (P = 26.32, B_o = 6.33, L_o = 104.18)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2660
ROLL = 15.9°
P-TH = 3.61

1428 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals
of 200° K

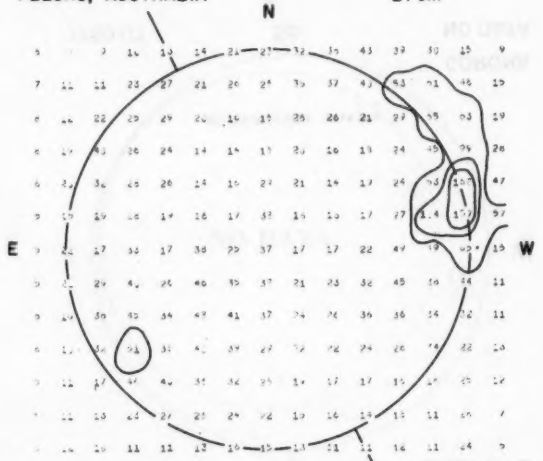
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
± 5
± 10
± 20
± 40
± 80

FLEURS, AUSTRALIA

21 cm

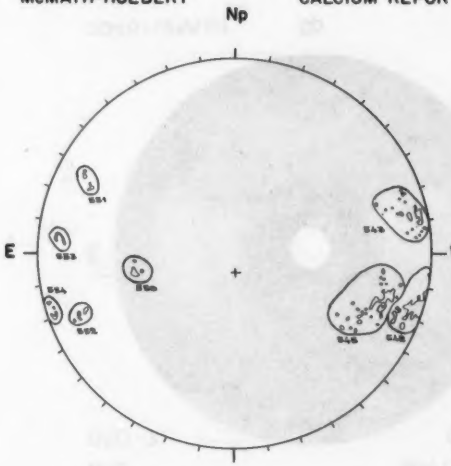


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR	S
42 - 2800 - 2.5	
43 - 1400 - 3.0	
45 - 1800 - 3.0	
50 - 0300 - 2.5	

1500 UT

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1500 UT

RAMEY AFB
08

Np

Hα

E

W

1124 UT

Sp

BOULDER

Np

SUNSPOTS

E

W

514 3A

550

545

NO PROMINENCE DRAWING

CORONA

1440 UT

Sp

NO DATA

NRL
OSO-7

WHITE-LIGHT
CORONA

E

W

0835-1329 UT

Sp

NASA GSFC
OSO-7

Np

FE. XV
284A

E

W

1428 UT

Sp

COUNT = 33102
ROLL = 15.9°
P-TH = 3.61

NRL
OSO-7

Np

171-630A

E

W

1424 UT
COUNT = 280880

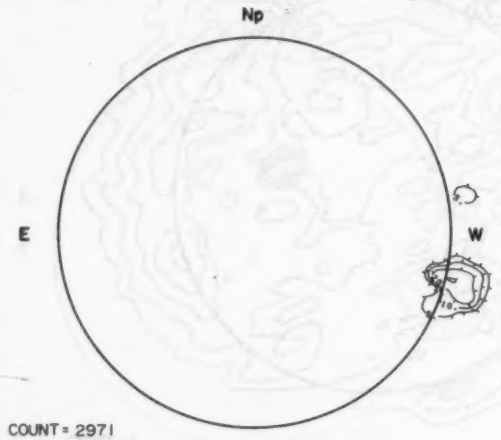
Sp

39
Oct 73

OCTOBER 9, 1973 (P = 26.33, B_o = 6.26, L_o = 90.99)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2971
ROLL = 15.4°
P-TH = 3.71

1316 UT

Counts per 0.125 sec.

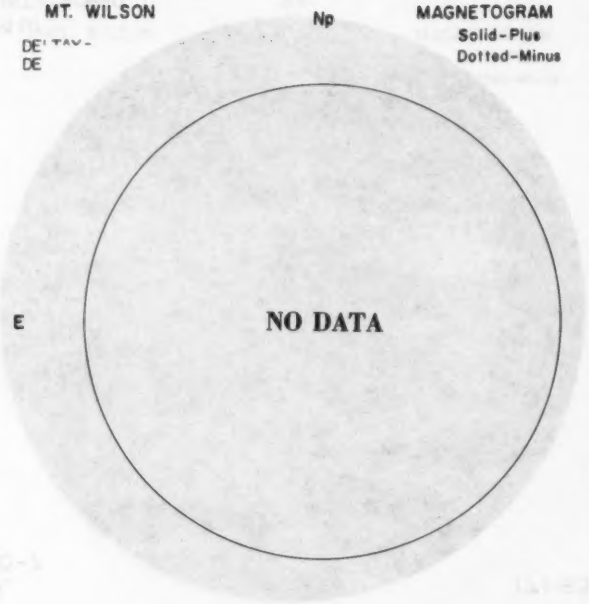
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals
of 200° K

MT. WILSON

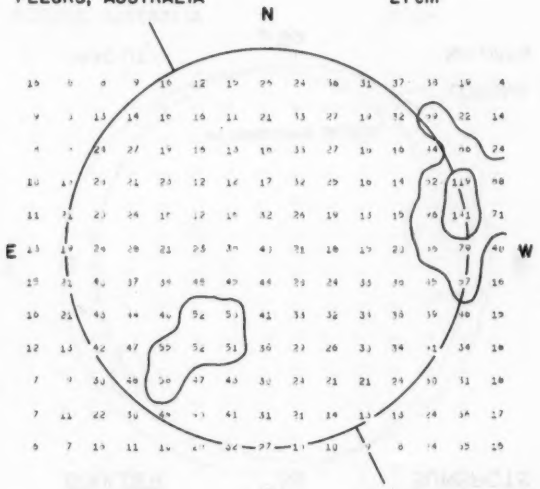
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

FLEURS, AUSTRALIA

21 cm

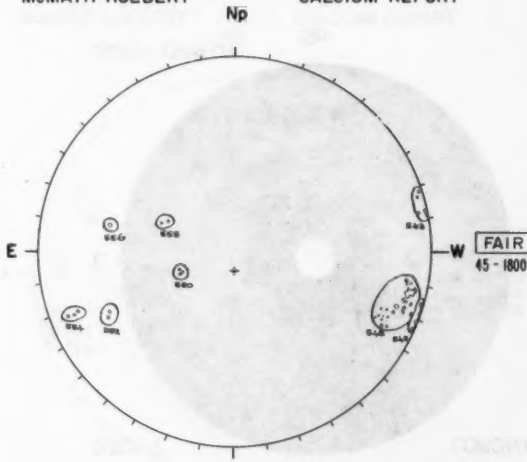


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR | M
45 - 1800 - 3.0

1735 UT

RAMEYAFB
09

Hα

BOULDER

SUNSPOTS

NRL
OSO-7

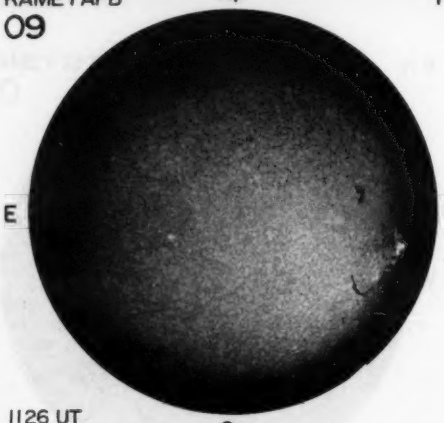
WHITE-LIGHT
CORONA

02-03 UT Brightness Unit 1,700° K 1735 UT

RAMEYAFB
09

Np

Hα

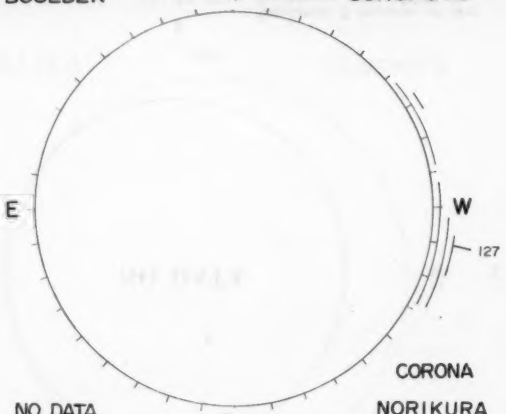


1126 UT

BOULDER

Np

SUNSPOTS



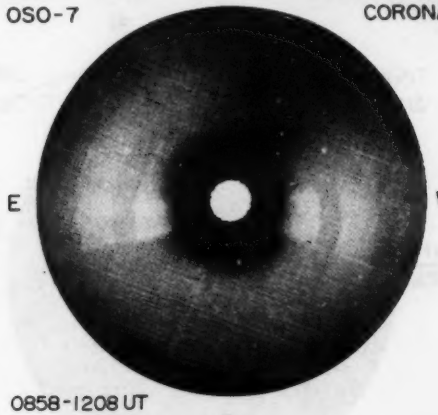
NO DATA

CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

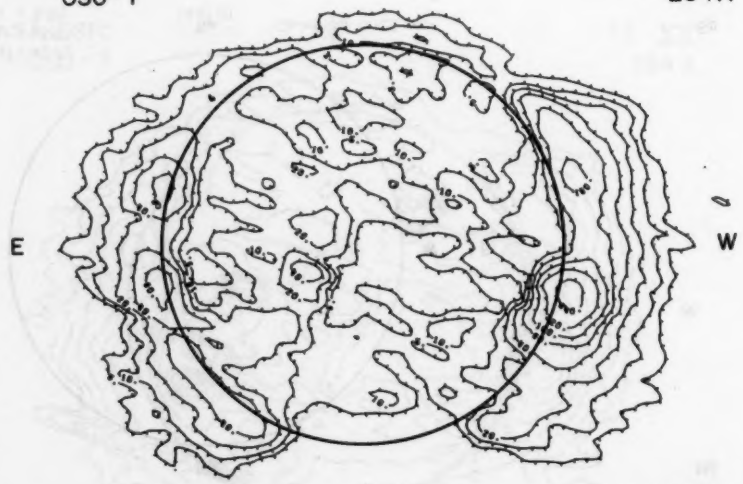


0858-1208 UT

NASA GSFC
OSO-7

Np

FE XV
284A



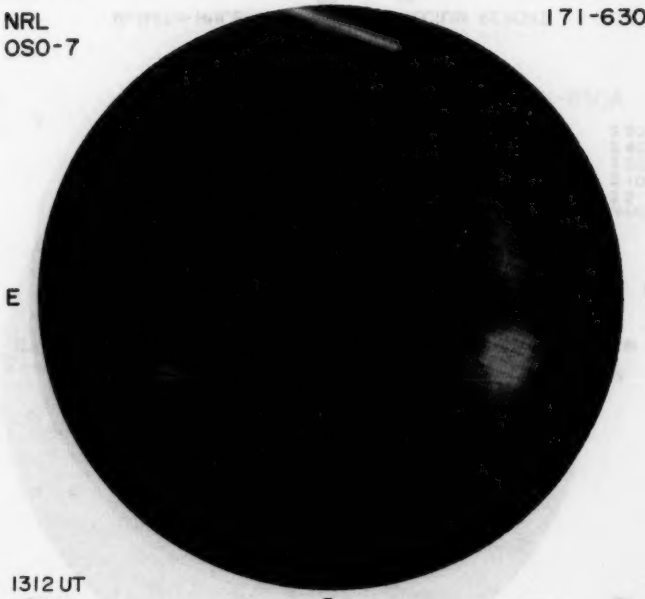
1316 UT

COUNT= 31847
ROLL = 15.4°
P-TH = 3.71

Np

NRL
OSO-7

171-630A



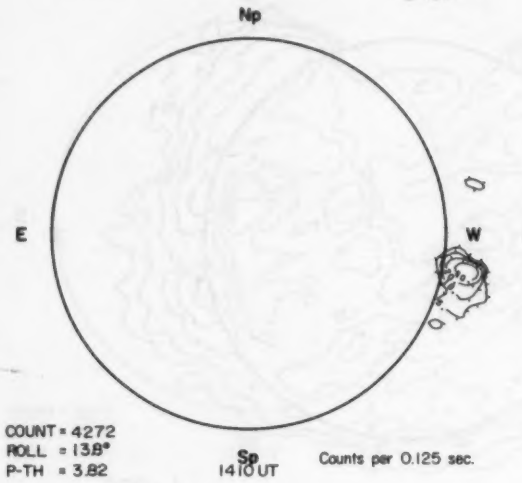
1312 UT
COUNT= ---

41
Oct 73

OCTOBER 10, 1973 (P = 26.34, B_o = 6.20, L_o = 77.80)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 4272
ROLL = 13.8°
P-TH = 3.82

1410 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

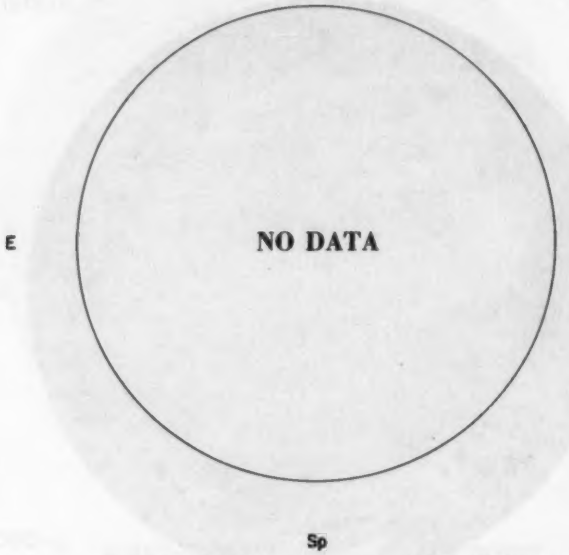
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY =
DEI

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

FLEURS, AUSTRALIA

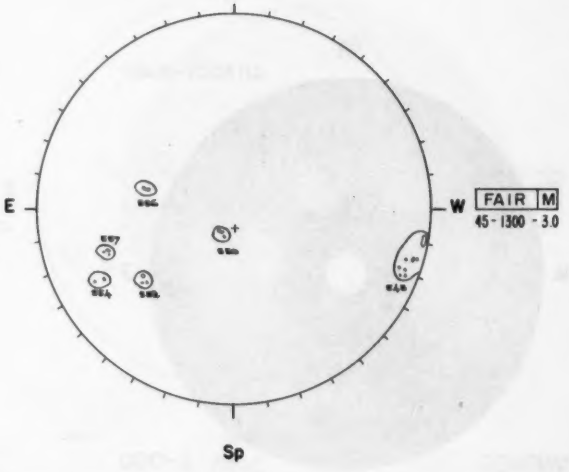
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1715 UT

02-03 UT

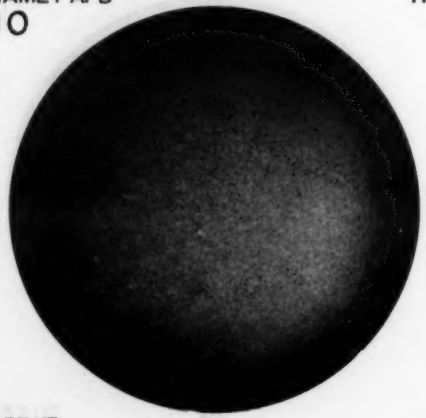
Resolution 5 Minutes of Arc
Brightness Unit 1,700° K

1715 UT

RAMEY AFB
10

Np

Hα



E W

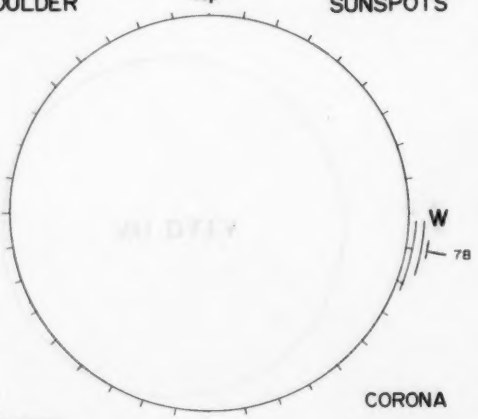
1137 UT

Sp

BOULDER

Np

SUNSPOTS



NO DATA

Sp

CORONA
WENDELSTEIN

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

0920-1233 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284 A

E W

1410 UT

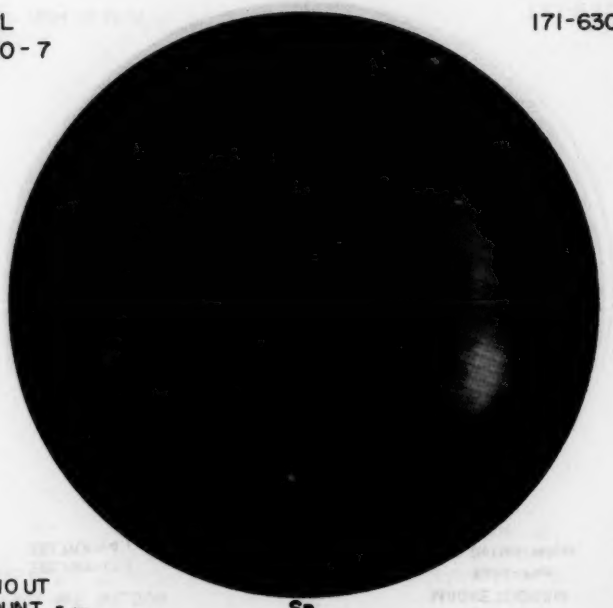
Sp

COUNT = 28071
ROLL = 13.8°
P-TH = 3.82

Np

NRL
OSO-7

171-630A



E W

1410 UT
COUNT = ---

Sp

OCTOBER 11, 1973 (P = 26.34, B_o = 6.13, L_o = 64.60)

NASA GSFC
OSO-7

X-RAY
8-16A

Np

E W

Sp

COUNT = 2861
ROLL = 11.4°
P-TH = 3.92

1228UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

Np

E W

Sp

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.3
DELTAX = 14.1

MAGNETOGRAM
Solid - Plus
Dotted - Minus

Np

E W

Sp

Levels
±5
±10
±20
±40
±80

16.04 - 18.43 UT

FLEURS, AUSTRALIA

21 cm

N

E

NO DATA

S

02 - 03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

Np

W E W

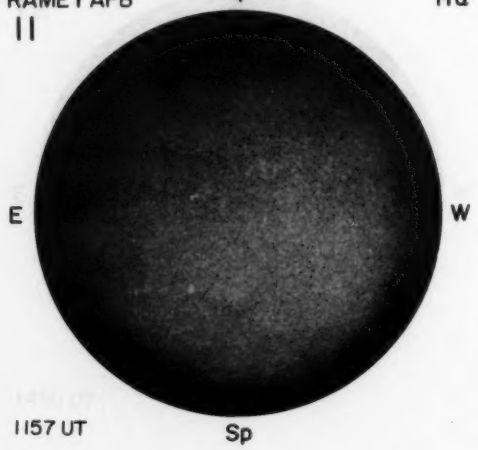
GOOD M

Sp

1535UT

02-03 UT Brightness Unit 1,700° K 1535 UT

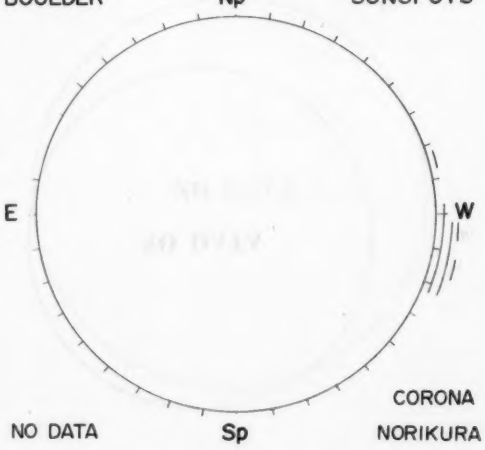
RAMEY AFB
11



Hα

1157 UT

BOULDER

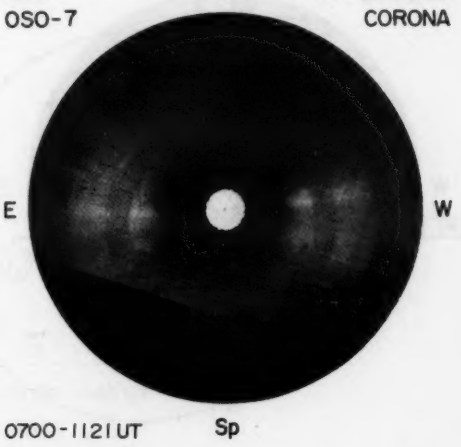


SUNSPOTS

NO DATA

CORONA
NORIKURA

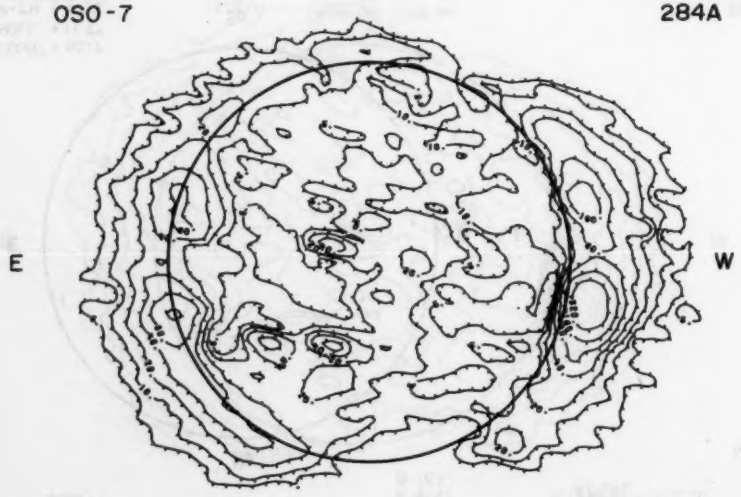
NRL
OSO-7



WHITE-LIGHT
CORONA

0700-1121 UT

NASA GSFC
OSO-7

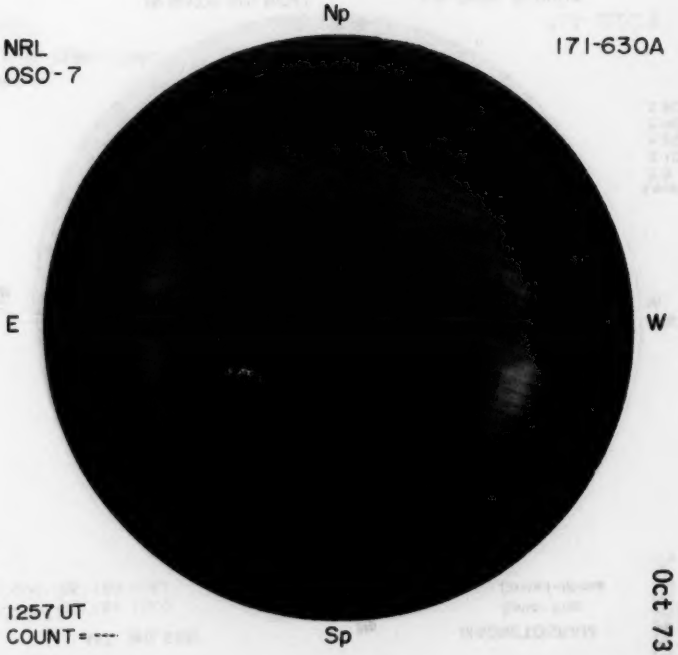


FE XV
284A

1228 UT

COUNT= 27250
ROLL = 11.4°
P-TH = 3.92

NRL
OSO-7



171-630A

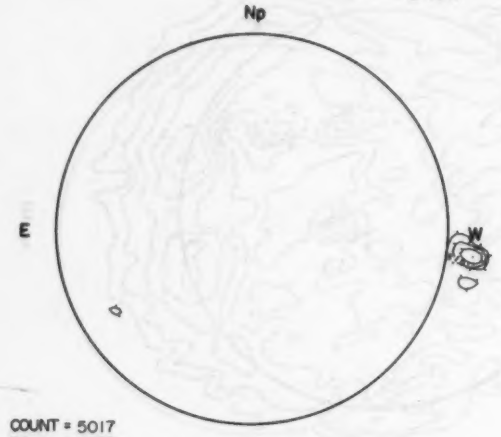
1257 UT
COUNT= ---

45
Oct 73

OCTOBER 12, 1973 (P = 26.33, B_o = 6.07, L_o = 51.41)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 5017
ROLL = 11.7°
P-TH = 4.03

1326 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

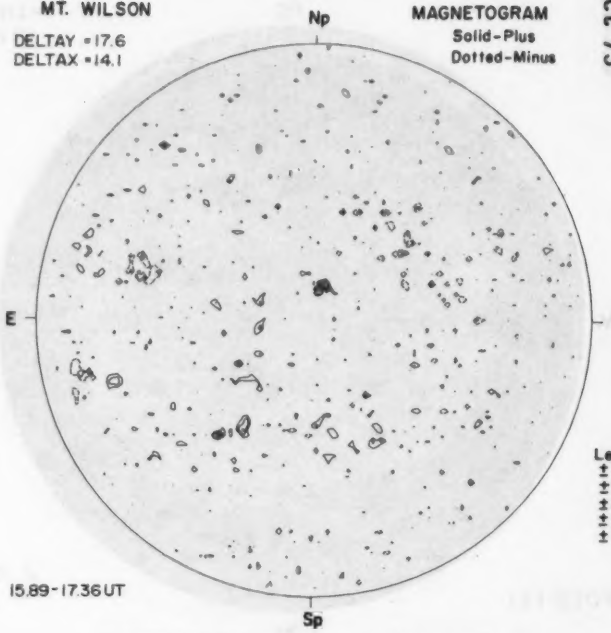
8.6 mm

Contours in intervals of 200° K

MT. WILSON

DELTAY = 17.6
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.89-17.36 UT

FLEURS, AUSTRALIA

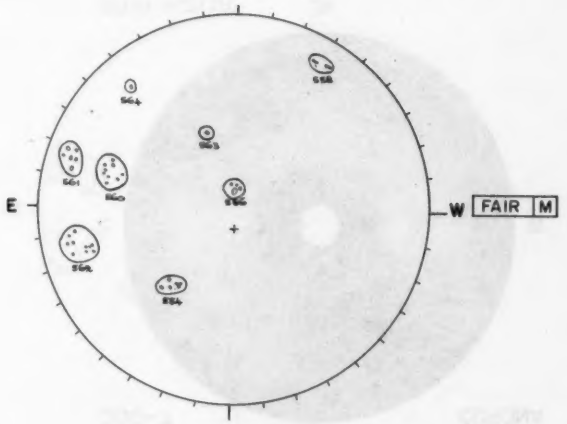
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1420 UT

BOULDER

Hα

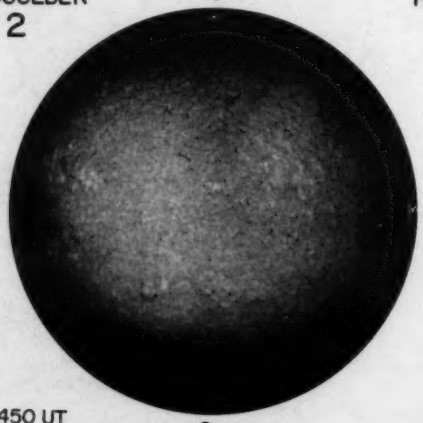
NRL
OSO-7

WHITE-LIGHT
CORONA

BOULDER
12

Np

Hα



E

W

Sp

1450 UT

NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

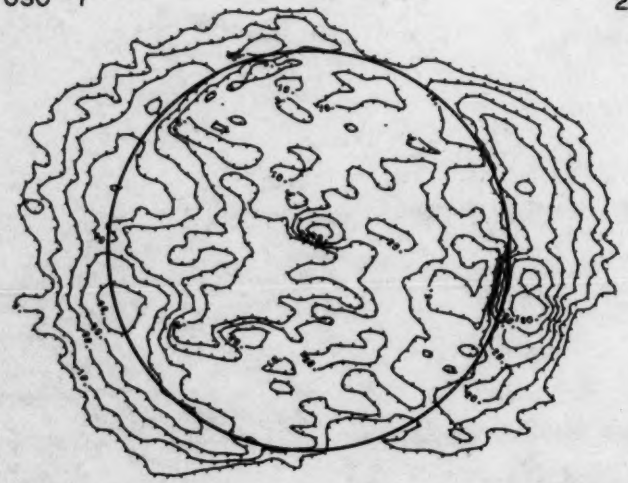
Sp

0704-1145 UT

NASA GSFC
OSO-7

Np

FE XV
284A



E

W

Sp

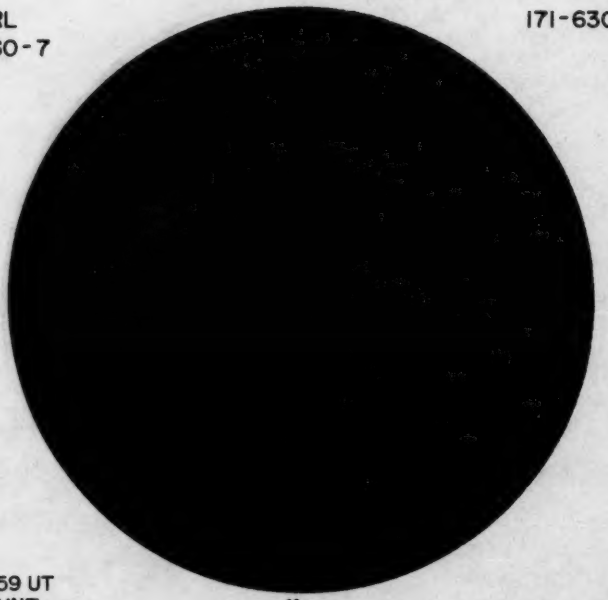
1326 UT

COUNT = 21335
ROLL = 11.7°
P-TH = 4.03

Np

NRL
OSO-7

171-630A



E

W

Sp

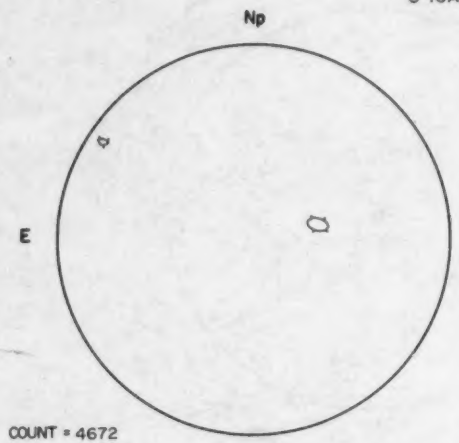
1459 UT
COUNT = ---

47
Oct 73

OCTOBER 13, 1973 (P = 26.31, $\dot{B}_o$ = 6.00, L_o = 38.22)

NASA GSFC
OSO-7

X-RAY
8-16A



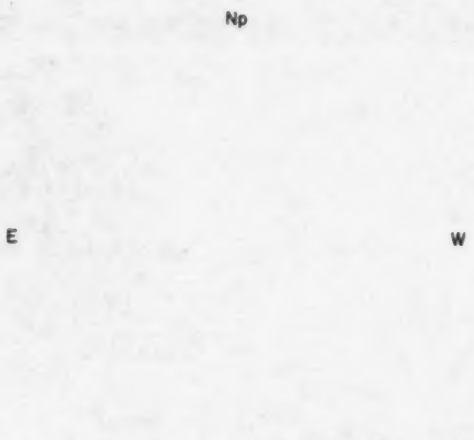
COUNT = 4672
ROLL = 10.7°
P-TH = 4.13

1213 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

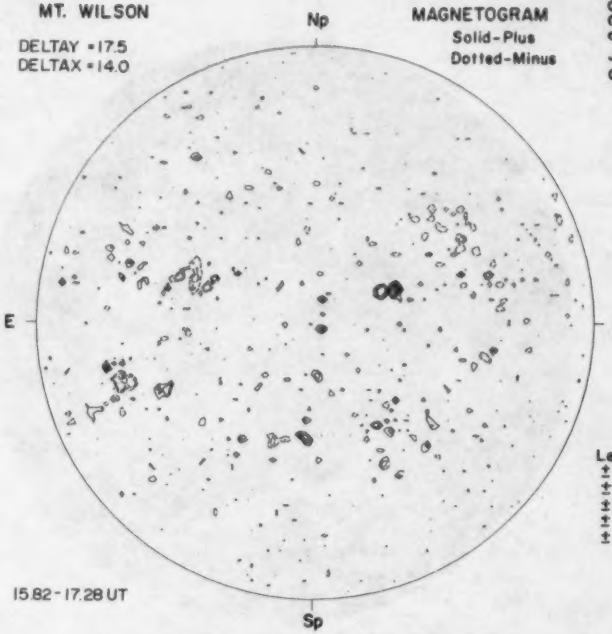


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.5
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.82 - 17.28 UT

FLEURS, AUSTRALIA

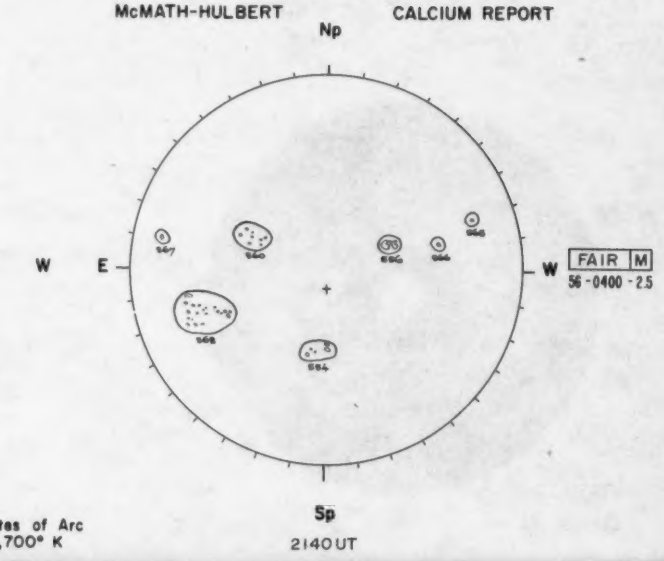
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



2140 UT

S
02-03 UT

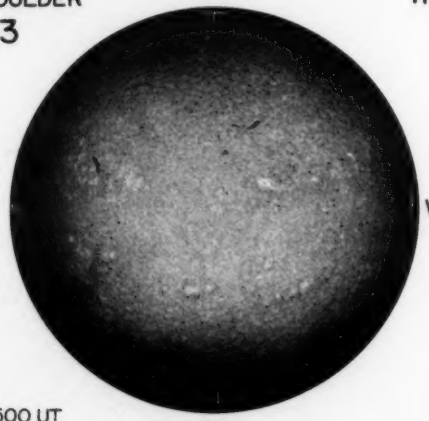
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
2140 UT

BOULDER
13

Np

Hα



E W

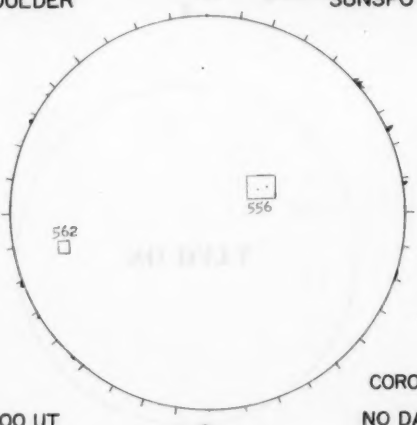
1500 UT

Sp

BOULDER

Np

SUNSPOTS



E W

CORONA
NO DATA

1600 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

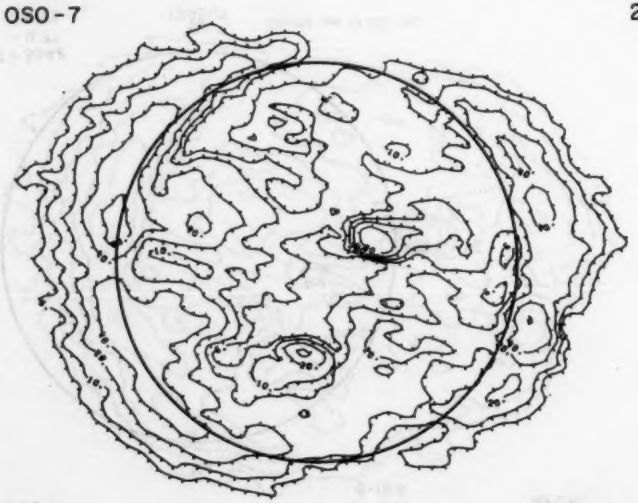
0547-1032 UT

Sp

NASA GSFC
OSO-7

Np

FE XV
284A



E W

1213 UT

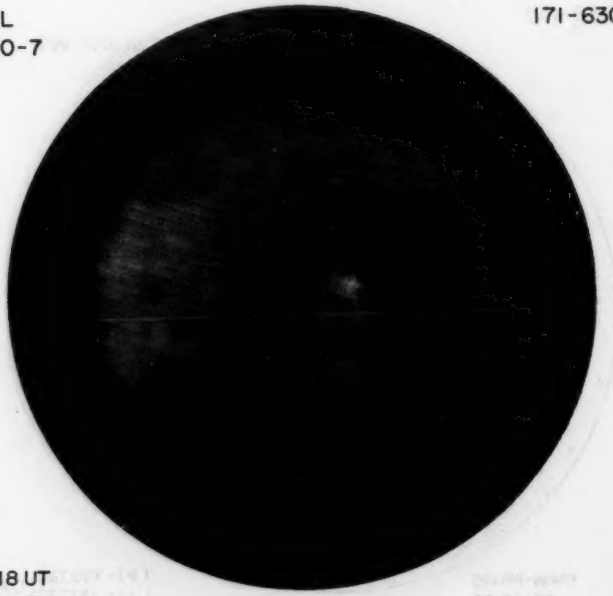
Sp

COUNT = 20136
ROLL = 10.7°
P-TH = 4.13

NRL
OSO-7

Np

171-630A



E W

1318 UT
COUNT = ---

Sp

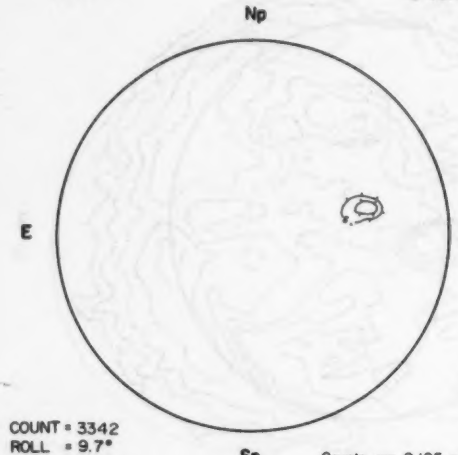
49
Oct 73

OCTOBER 14, 1973 (P = 26.29, B_o = 5.93, L_o = 25.03)

50 Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3342
ROLL = 9.7°
P-TH = 4.23

1245 UT

Counts per 0.125 sec.

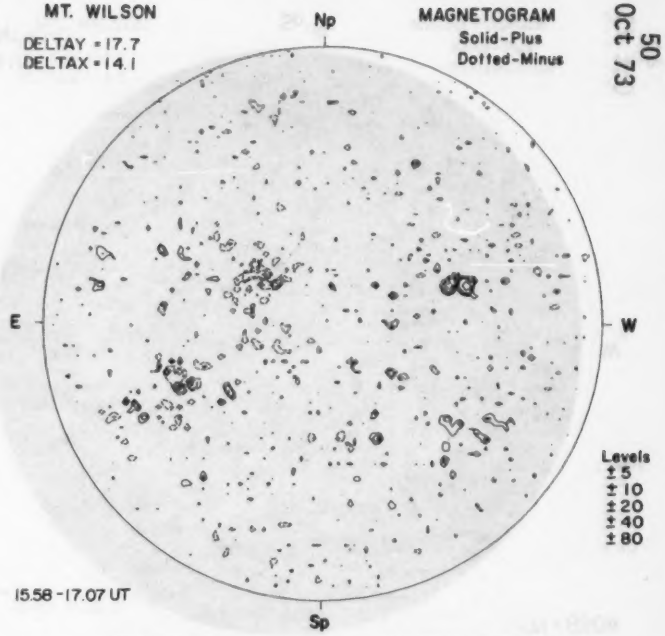
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON
DELTAY = 17.7
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.58 - 17.07 UT

FLEURS, AUSTRALIA

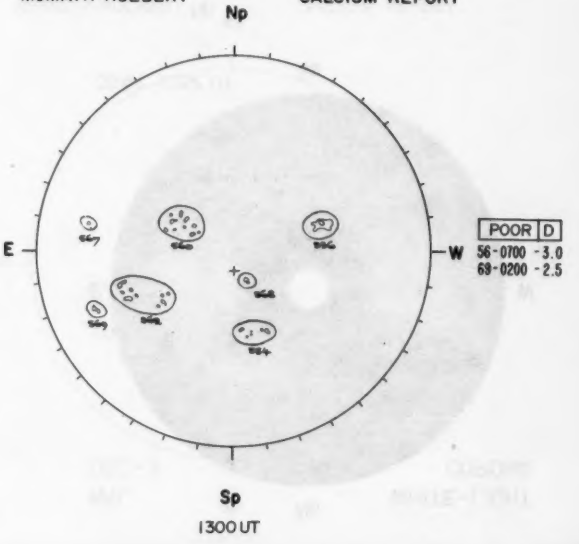
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



POOR D
56-0700 -3.0
69-0200 -2.5

1300 UT

02-03 UT

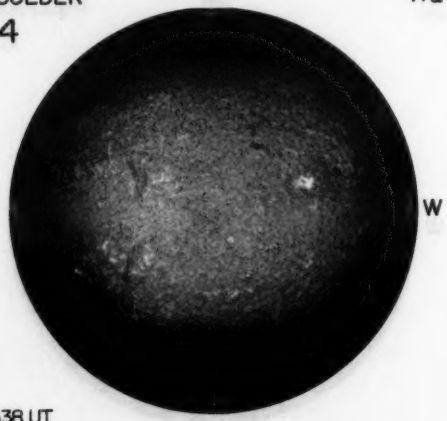
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1300 UT

BOULDER
14

Np

Hα



E

W

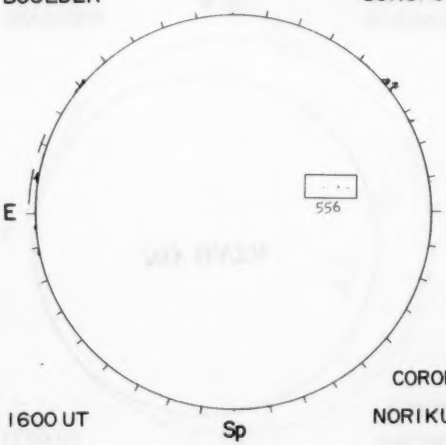
1538 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA

NORIKURA

1600 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

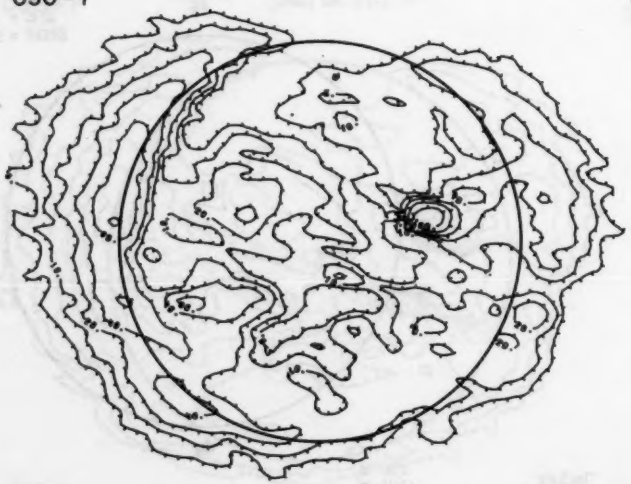
0611-1057 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 20629
ROLL = 9.7°
P-TH = 4.23

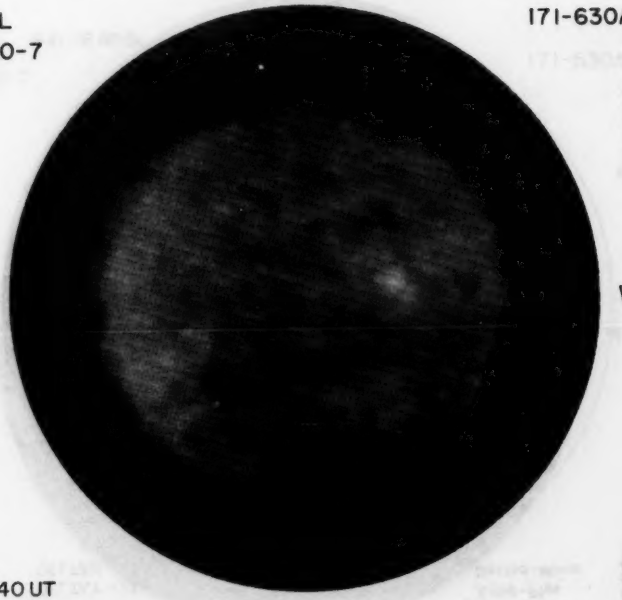
1243 UT

Sp

NRL
OSO-7

Np

171-630A



E

W

1240 UT
COUNT = ---

Sp

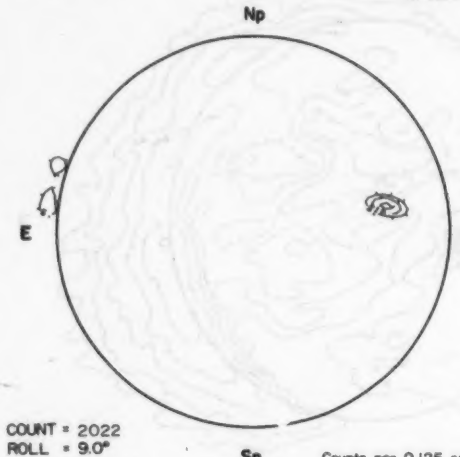
51
Oct 73

OCTOBER 15, 1973 (P = 26.26, B_o = 5.85, L_o = 11.84)

52
Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2022
ROLL = 9.0°
P-TH = 4.30

0502 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

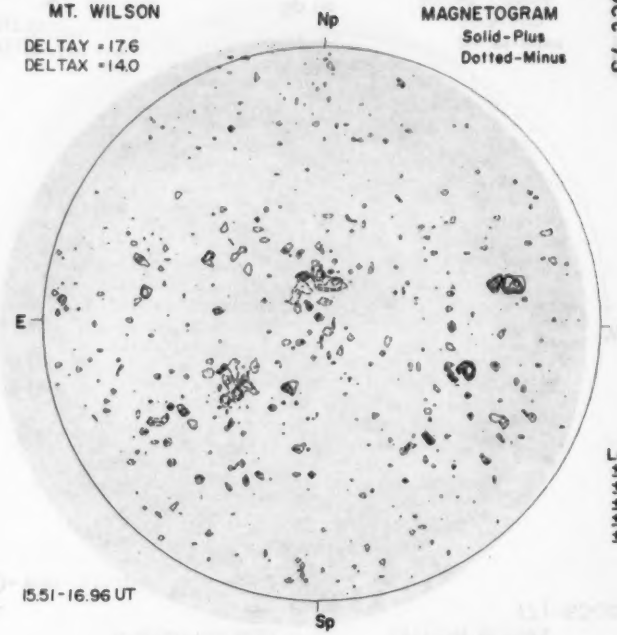
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.6
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.51-16.96 UT

FLEURS, AUSTRALIA

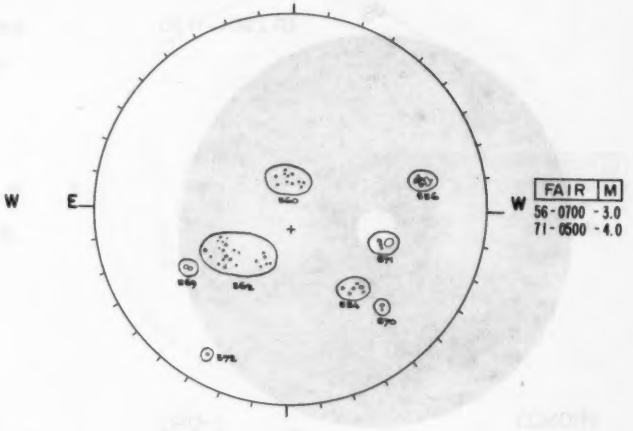
21 cm

McMATH-HULBERT

CALCIUM REPORT

02-03 UT

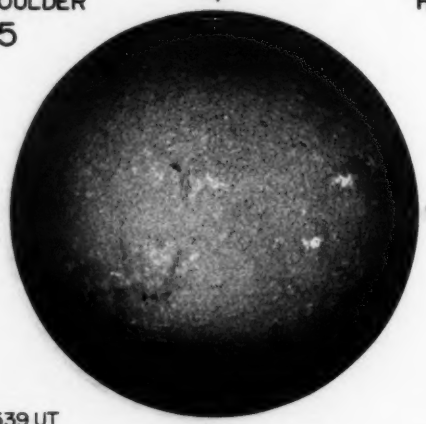
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K



1440 UT

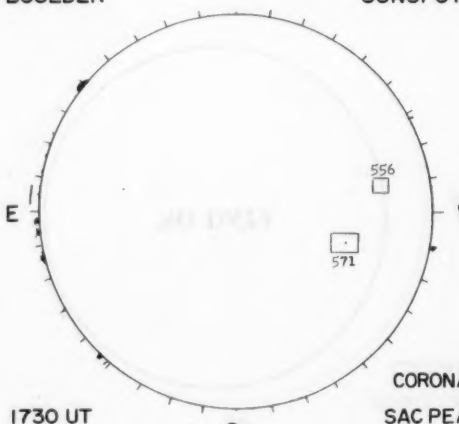
02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K 1440 UT

BOULDER
15



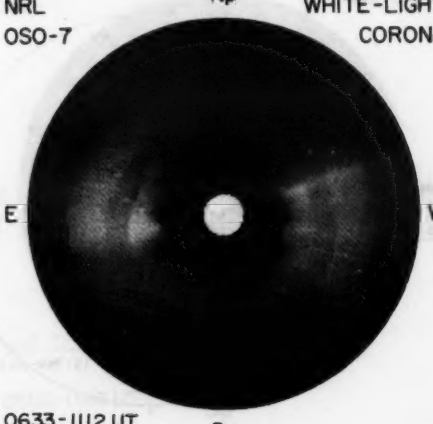
Hα
1539 UT

BOULDER



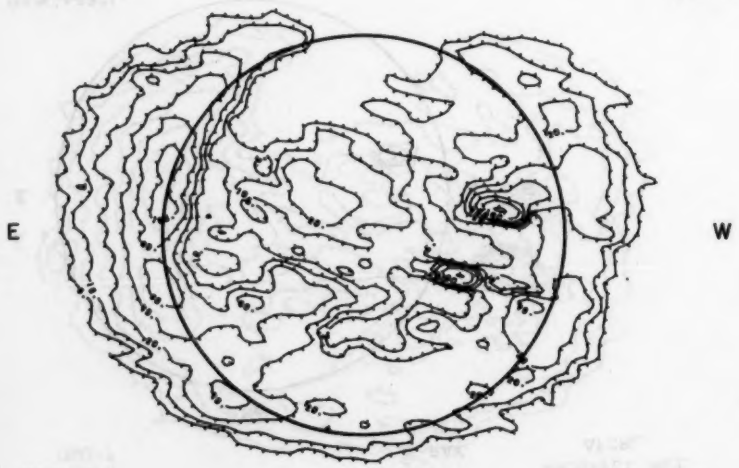
SUNSPOTS
CORONA
SAC PEAK
1730 UT

NRL
OSO-7



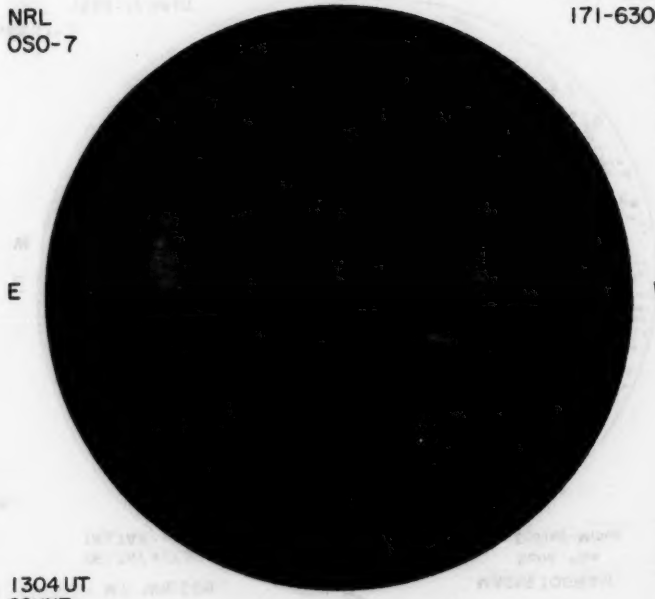
WHITE-LIGHT
CORONA
0633-1112 UT

NASA GSFC
OSO-7



FE XV
284A
0502 UT
COUNT = 22987
ROLL = 9.0°
P-TH = 4.30

NRL
OSO-7



171-630A
1304 UT
COUNT = ---

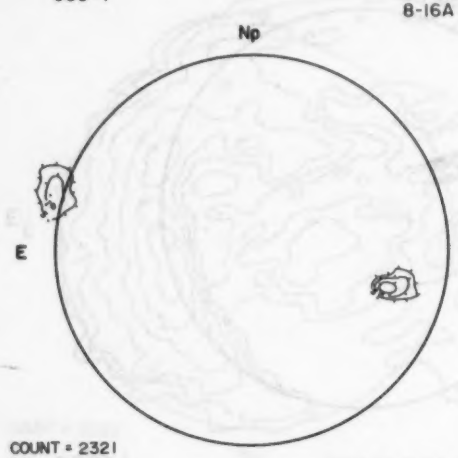
53
Oct 73

OCTOBER 16, 1973 (P = 26.22, B_o = 5.78, L_o = 358.65)

54
Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2321
ROLL = 8.7°
P-TH = 4.40

0526 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

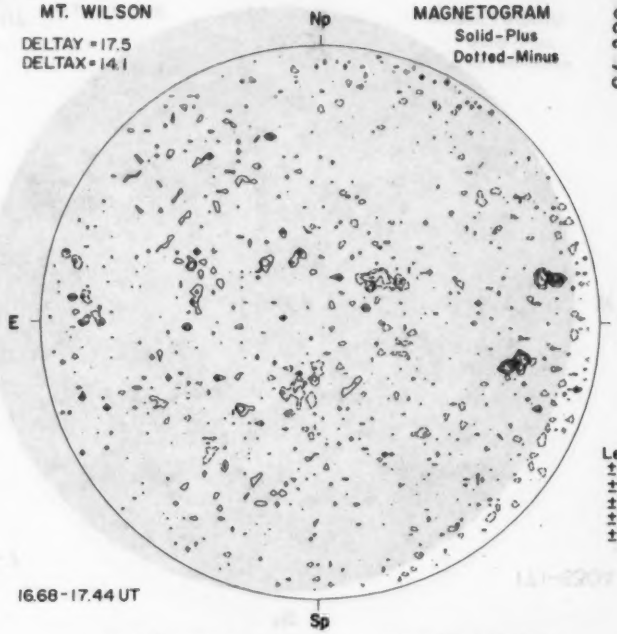
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.5
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

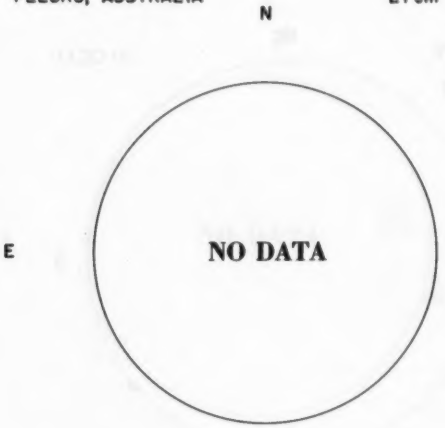


Levels
±5
±10
±20
±40
±80

16.68-17.44 UT

FLEURS, AUSTRALIA

21 cm

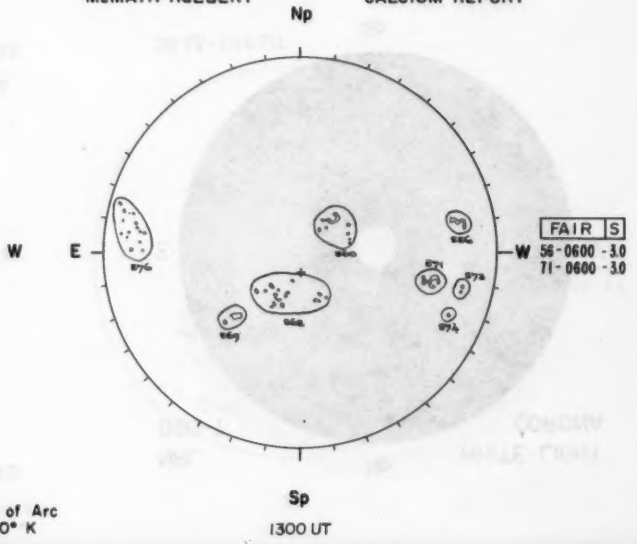


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1300 UT

S
02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1300 UT

BOULDER
16

Np

Hα

E

W

1830 UT

Sp

BOULDER

Np

SUNSPOTS

556

571

E

W

CORONA
NORIKURA

1830 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

STAR
(SPICA, MAG. 1.2)

0656-1146 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A

NRL
OSO-7

171-630A

E

W

0526 UT

Sp

COUNT = 26199
ROLL = 8.7°
P-TH = 4.40

E

NO DATA

W

COUNT=

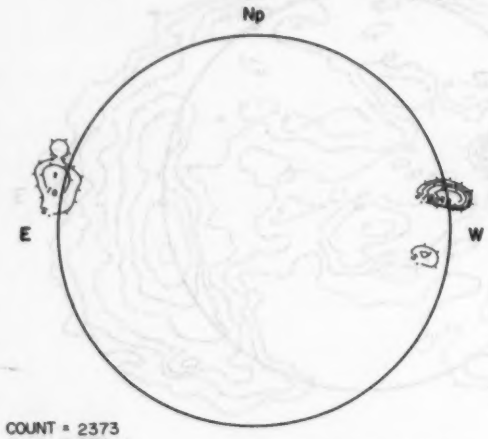
Sp

55
Oct 73

OCTOBER 17, 1973 (P = 26.18, B_o = 5.70, L_o = 345.46)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2373
ROLL = 99°
P-TH = 4.50

0414 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

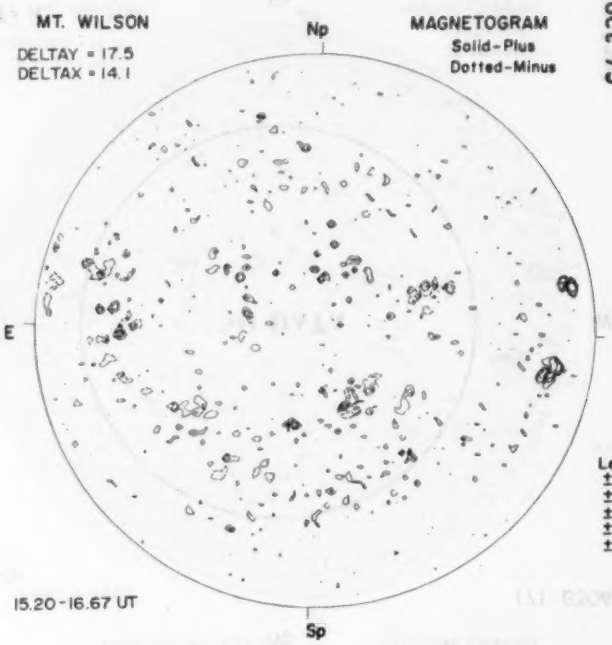
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.5
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.20-16.67 UT

FLEURS, AUSTRALIA

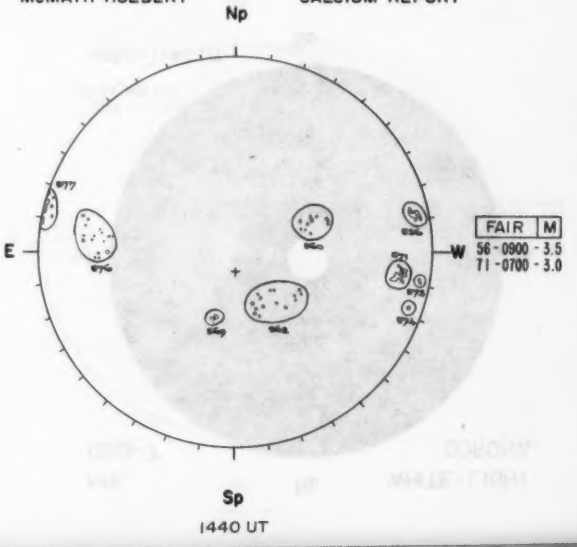
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1440 UT

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

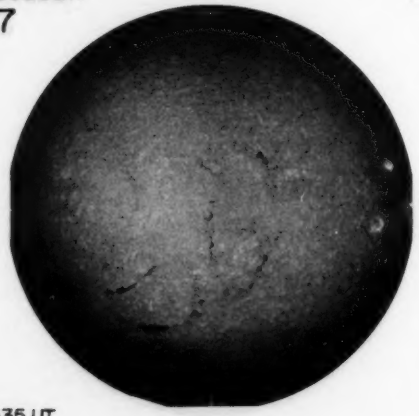
Sp

1440 UT

BOULDER
17

Np

Hα



E

W

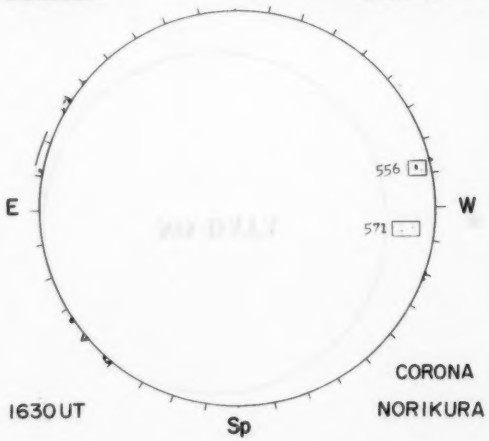
1535 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1630 UT

Sp

CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

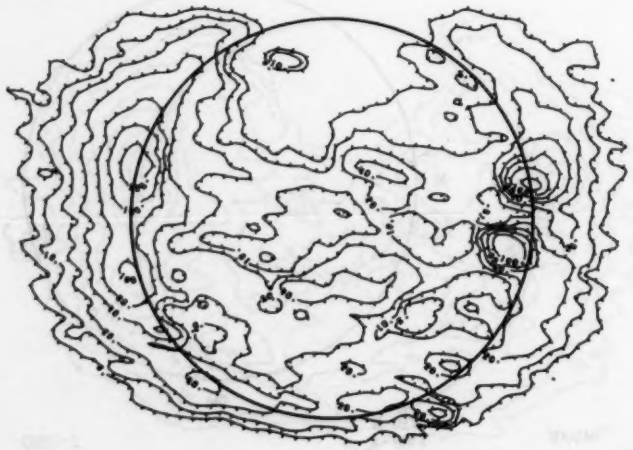
0720-1211 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

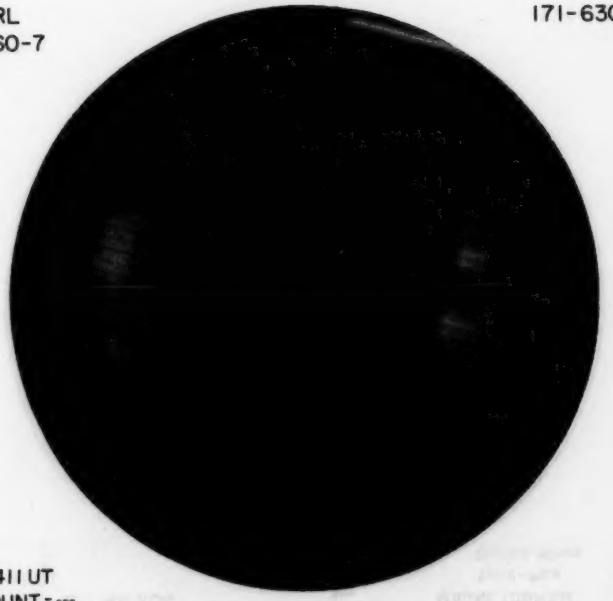
COUNT = 30678
ROLL = 9.9°
P-TH = 4.50

0414 UT

Sp

NRL
OSO-7

171-630A



E

W

0411 UT
COUNT = ---

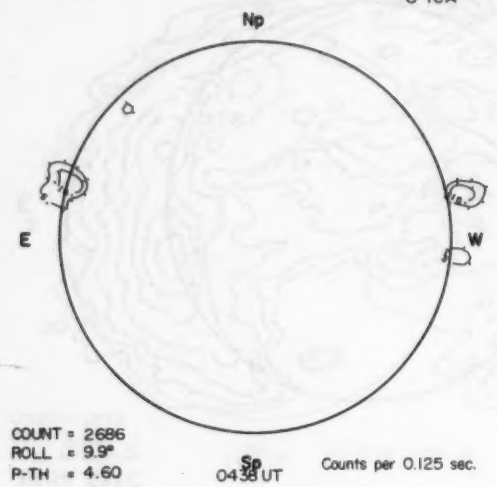
Sp

57
Oct 73

OCTOBER 18, 1973 (P = 26.12, B_o = 5.62, L_o = 332.27)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2686
ROLL = 9.9°
P-TH = 4.60

0438 UT

Counts per 0.125 sec.

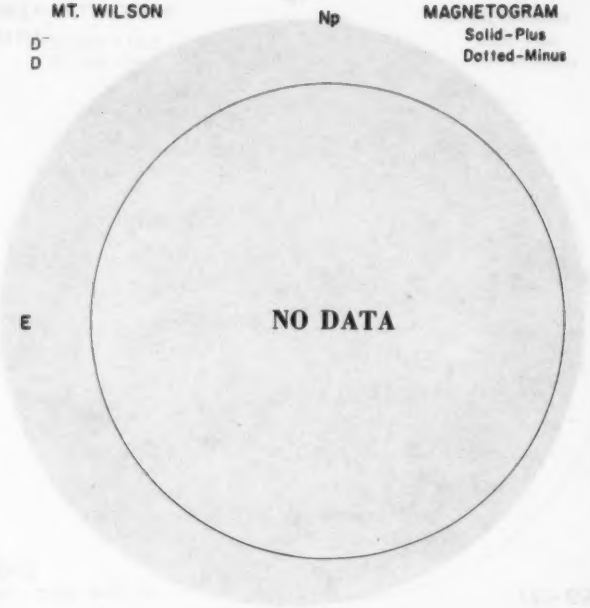
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

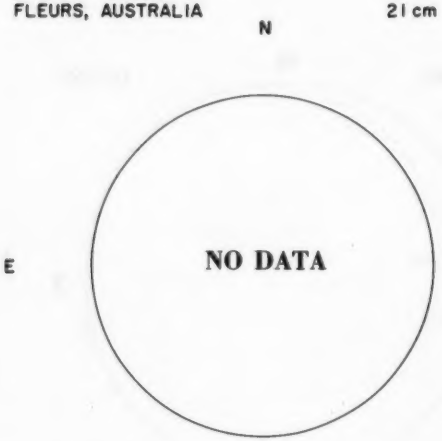
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

FLEURS, AUSTRALIA

21 cm

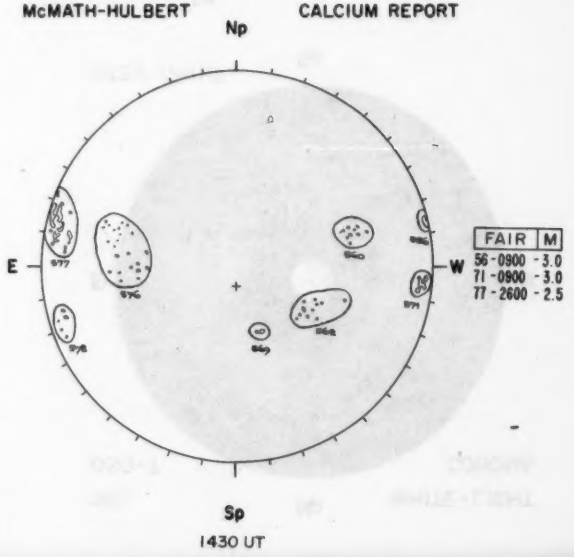


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1430 UT

S
02-03 UT

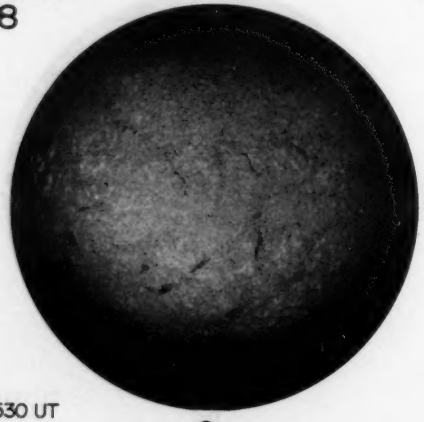
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1430 UT

BOULDER
18

Np

Hα



E

W

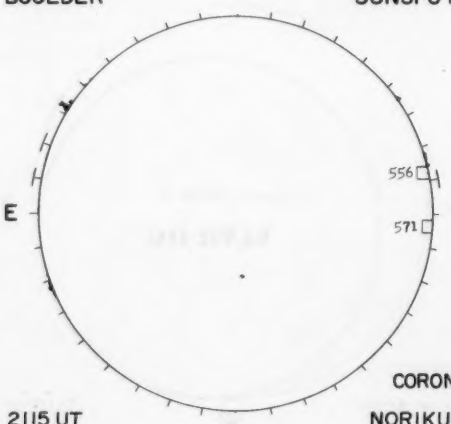
1530 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

CORONA
NORIKURA

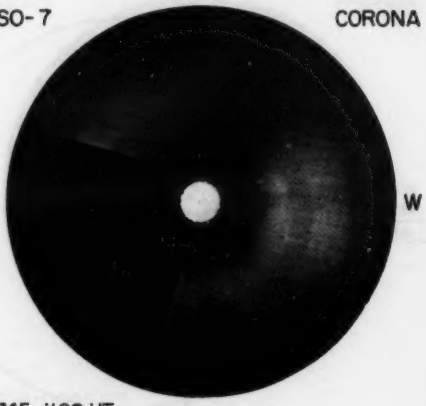
2115 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA



E

W

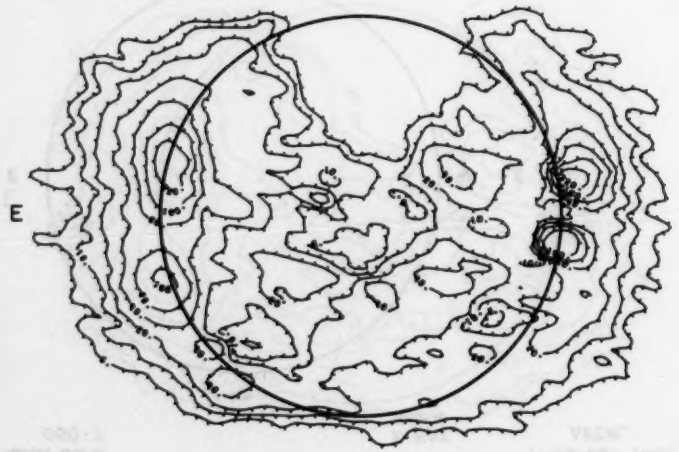
0745-1102 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 32656
ROLL = 9.9°
P-TH = 4.60

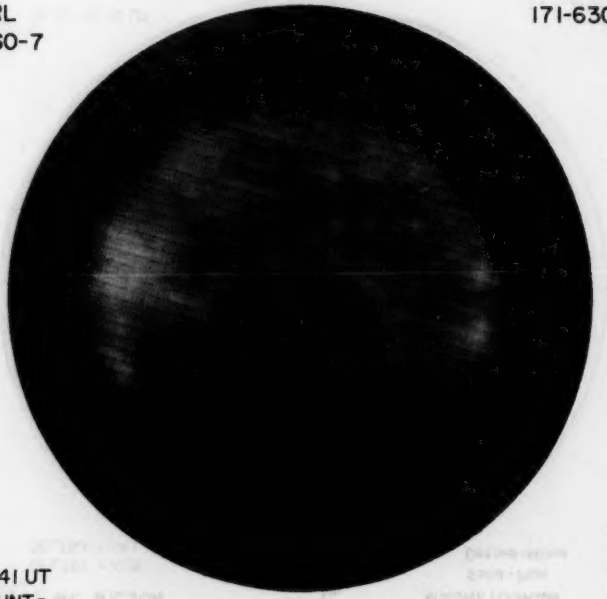
0438 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

1241 UT
COUNT = ---

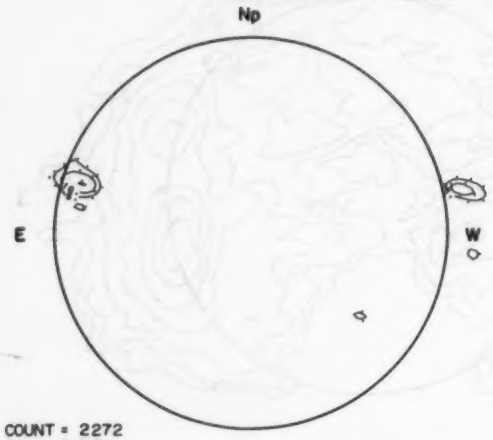
Sp

OCTOBER 19, 1973 (P = 26.06, B_o = 5.54, L_o = 319.08)

60
Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



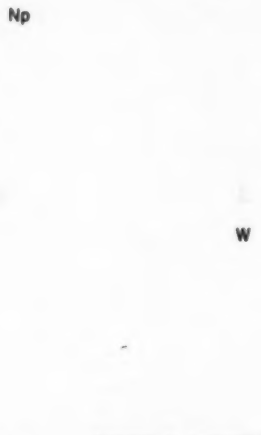
COUNT = 2272
ROLL = 93°
P-TH = 4.69

0326 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

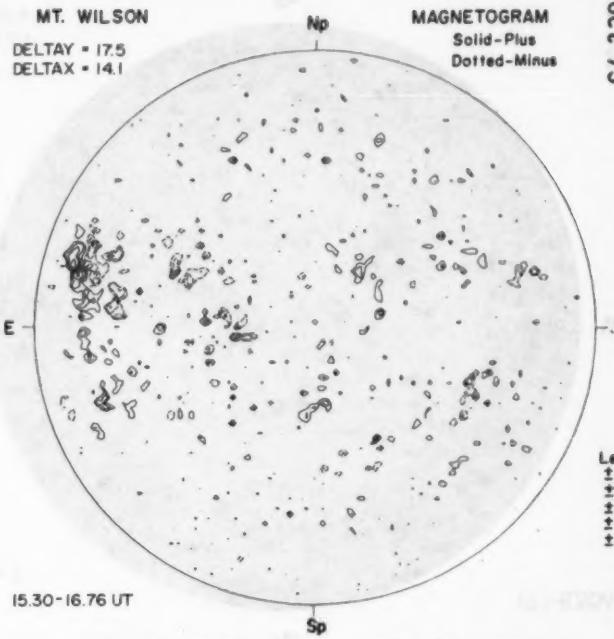


Contours in intervals of 200° K

MT. WILSON

DELTAY = 17.5
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.30-16.76 UT

FLEURS, AUSTRALIA

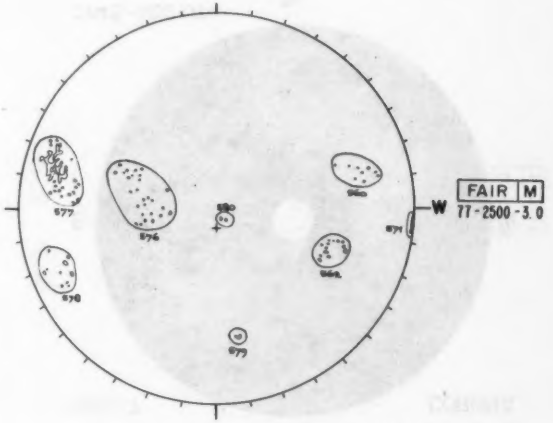
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1420 UT

BOULDER

Np

Hα

BOULDER

Np

SUNSPOTS

NRL

Np

WHITE-LIGHT

02-03 UT

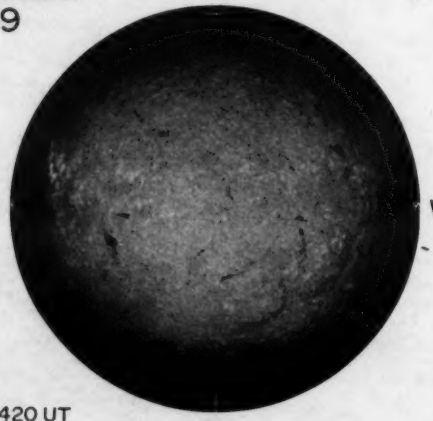
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1420 UT

BOULDER
19

Np

Hα



E

W

1420 UT

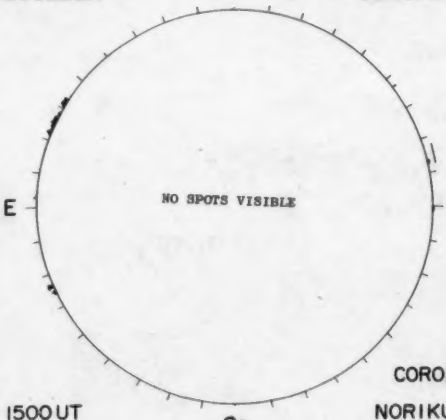
Sp

Np

BOULDER

Np

SUNSPOTS



E

W

CORONA

NORIKURA

1500 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0459-0946 UT

Sp

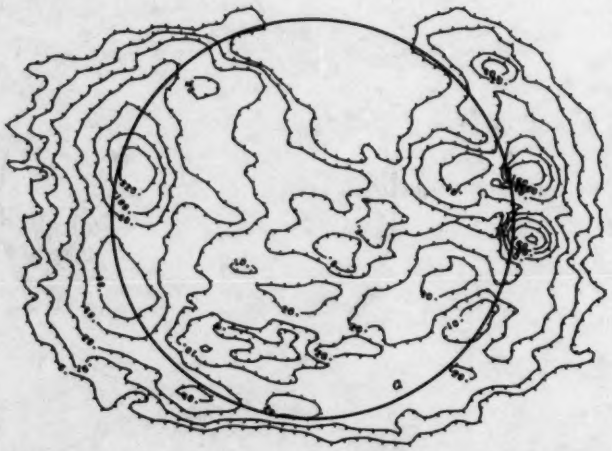
Np

NASA GSFC
OSO-7

FE XV
284A

NRL
OSO-7

171-630A



E

W

COUNT = 31210
ROLL = 9.3°
P-TH = 4.69

0326 UT

Sp

E

NO DATA

W

COUNT =

Sp

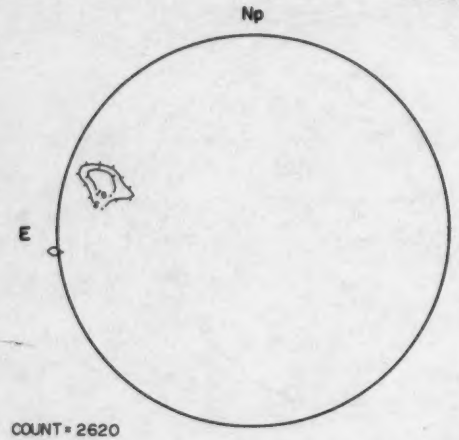
61
Oct 73

OCTOBER 20, 1973 (P = 25.99, B_o = 5.46, L_o = 305.89)

62
Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 2620
ROLL = 8.3°
P-TH = 4.79

0350 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

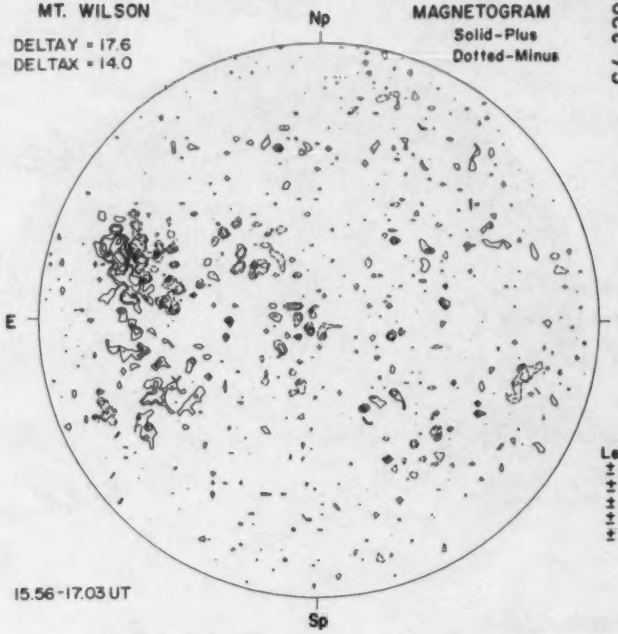
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.6
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus

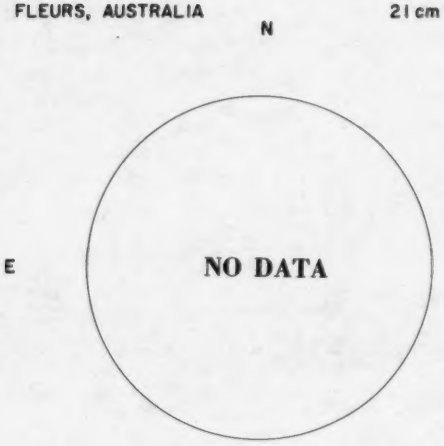


Levels
±5
±10
±20
±40
±80

15.56-17.03 UT

FLEURS, AUSTRALIA

21 cm

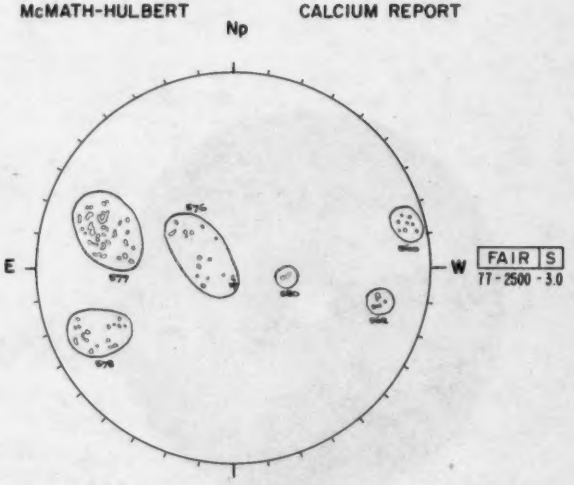


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR | S
77-2500-3.0

1400 UT

BOULDER

Hα

BOULDER

SUNSPOTS

02-03 UT

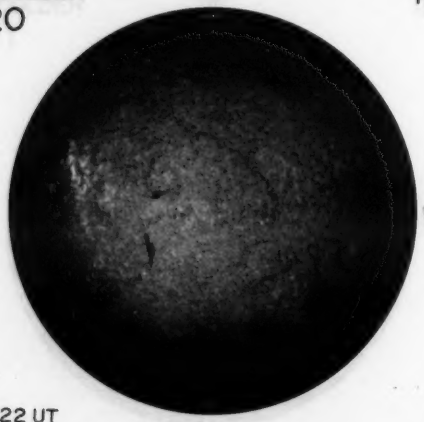
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1400 UT

BOULDER
20

Np

Hα



E

W

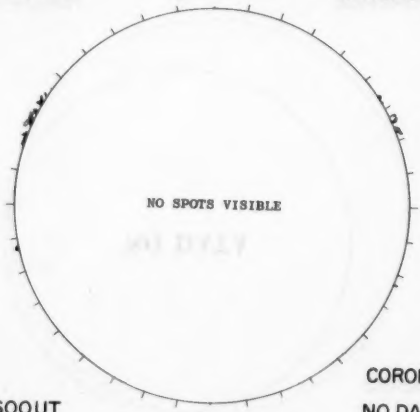
1522 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1600UT

Sp

CORONA
NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

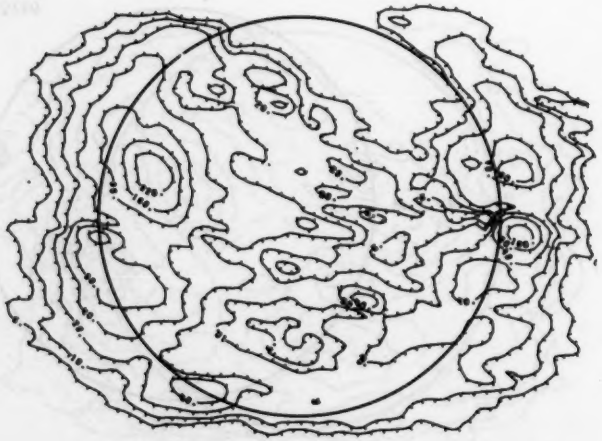
0525-1010 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 31586
ROLL = 8.3°
P-TH = 4.79

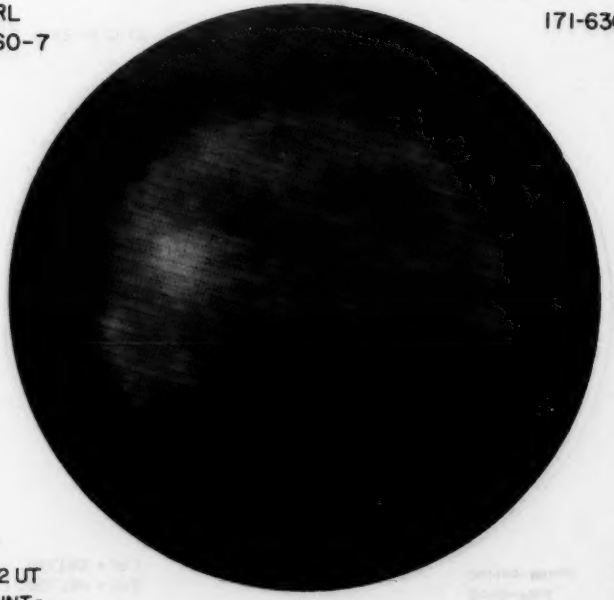
0350 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

1152 UT
COUNT = ---

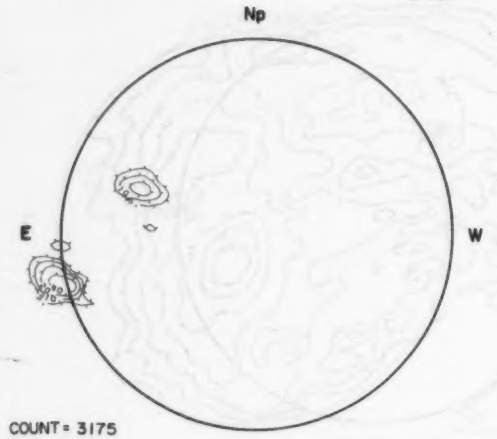
Sp

63
Oct 73

OCTOBER 21, 1973 (P = 25.92, B_o = 5.38, L_o = 292.70)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3175
ROLL = 7.6°
P-TH = 4.88

0428 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

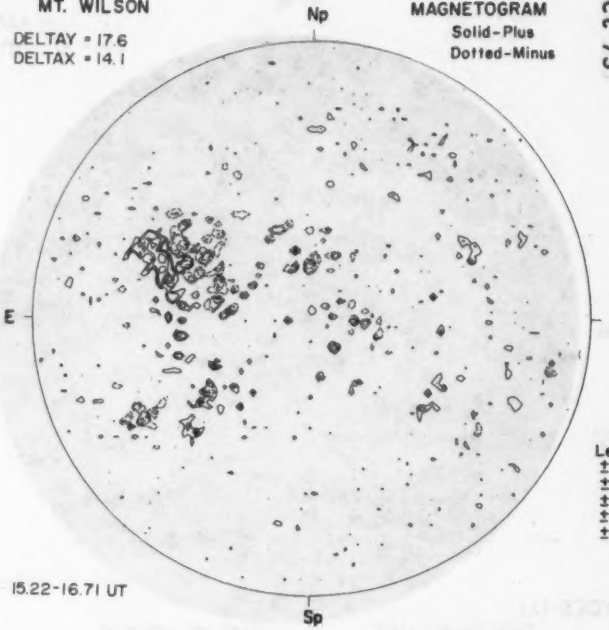
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.6
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.22-16.71 UT

FLEURS, AUSTRALIA

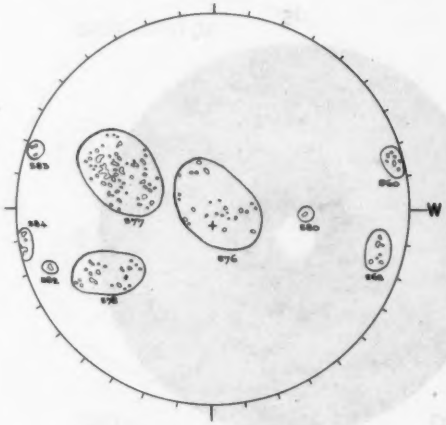
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



FAIR D
77 - 2500 - 3.0
82 - 0200 - 2.5
84 - 0800 - 3.5

1340 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

02-03 UT

1340 UT

BOULDER
21

Np

Hα

E

W

1458 UT

Sp

BOULDER

Np

SUNSPOTS

E

W

584

CORONA

NO DATA

1630 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

0543-1034 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A

E

W

COUNT = 34939
ROLL = 7.6°
P-TH = 4.88

0428 UT

Sp

Np

NRL
OSO-7

171-630A

E

W

1211 UT
COUNT = ---

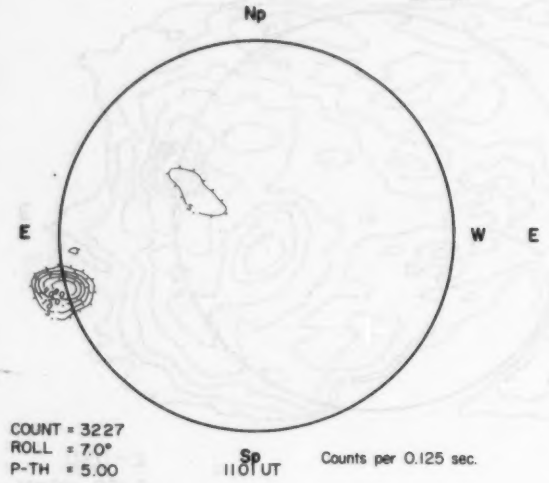
Sp

65
Oct 73

OCTOBER 22, 1973 (P = 25.83, B_o = 5.29, L_o = 279.51)

NASA GSFC
OSO-7

X-RAY
8-16A



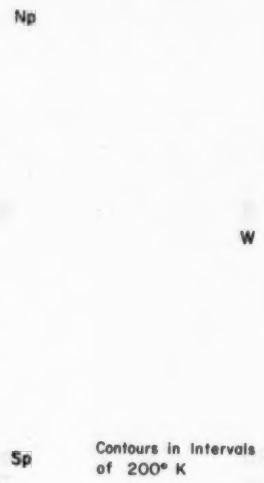
COUNT = 3227
ROLL = 7.0°
P-TH = 5.00

1101 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

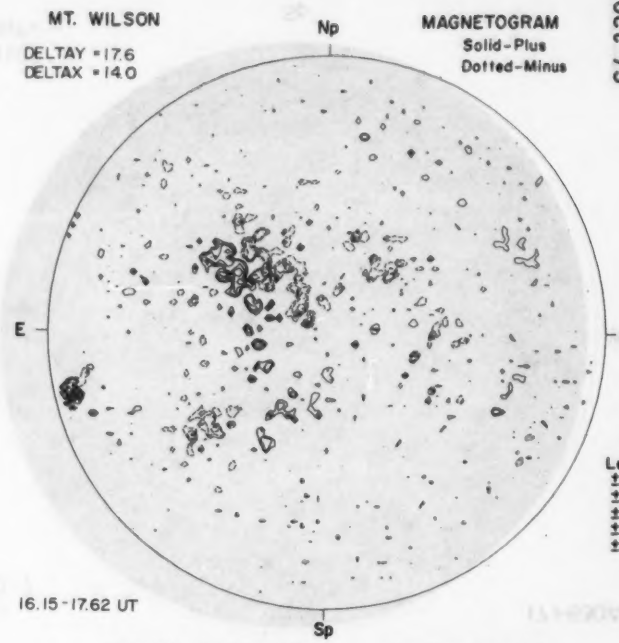


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.6
DELTAX = 14.0

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

16.15-17.62 UT

FLEURS, AUSTRALIA

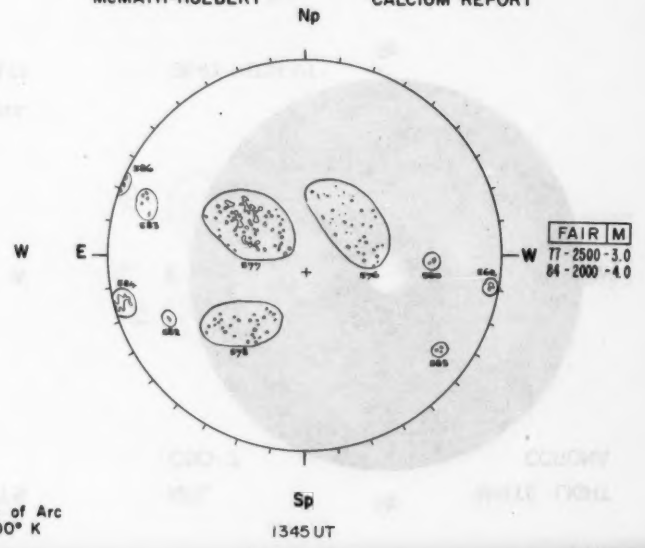
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1345 UT

02-03 UT

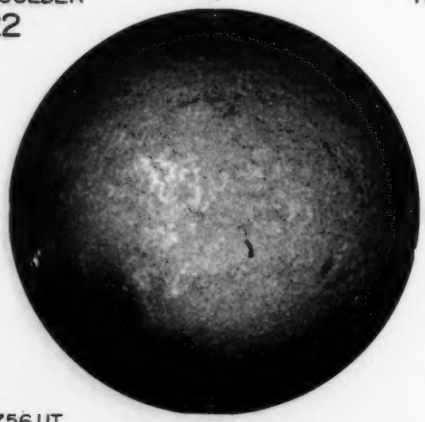
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1345 UT

BOULDER
22

Np

Hα



E W

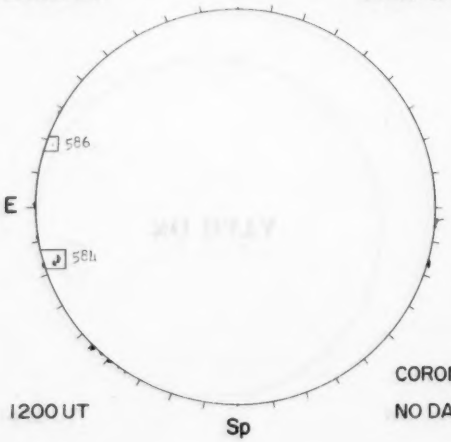
1756 UT

Sp

BOULDER

Np

SUNSPOTS



E W

CORONA
NO DATA

1200 UT

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

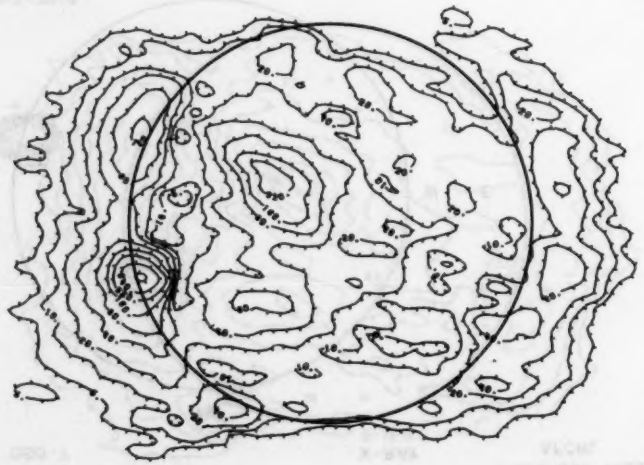
0432-0920 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 40659
ROLL = 7.0°
P-TH = 5.00

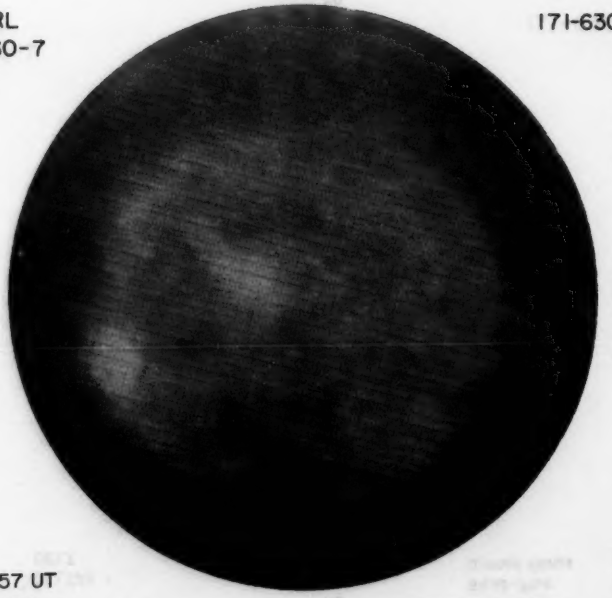
1101 UT

Sp

Np

NRL
OSO-7

171-630A



E W

1057 UT
COUNT = ---

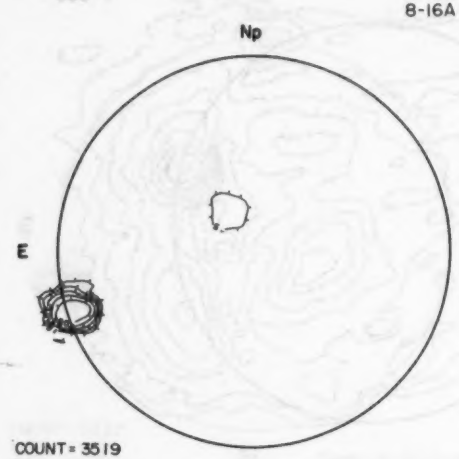
Sp

67
Oct 73

OCTOBER 23, 1973 (P = 25.74, B_o = 5.20, L_o = 266.32)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3519
ROLL = 7.0°
P-TH = 5.06

0322 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

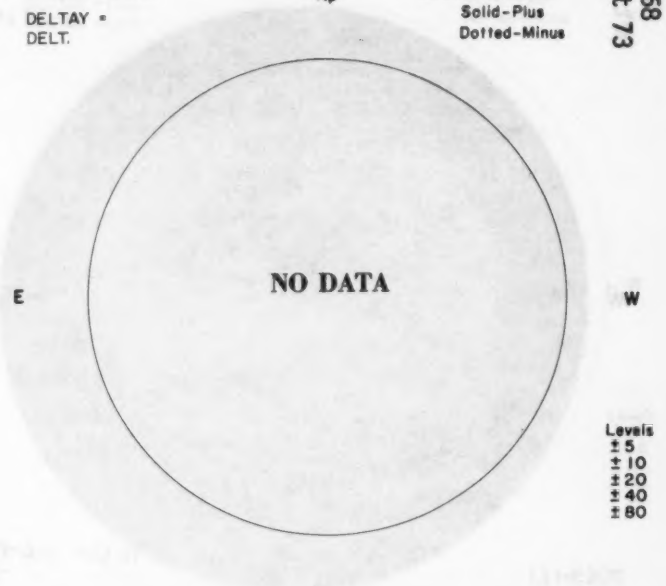
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = DELT.

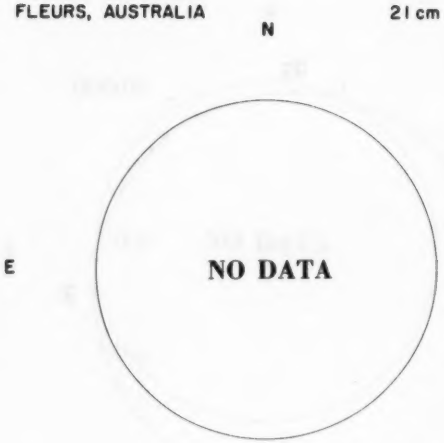
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

FLEURS, AUSTRALIA

21 cm

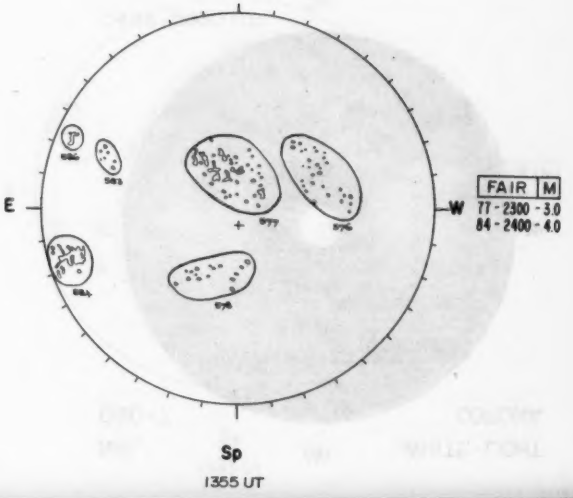


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1355 UT

S
02-03 UT

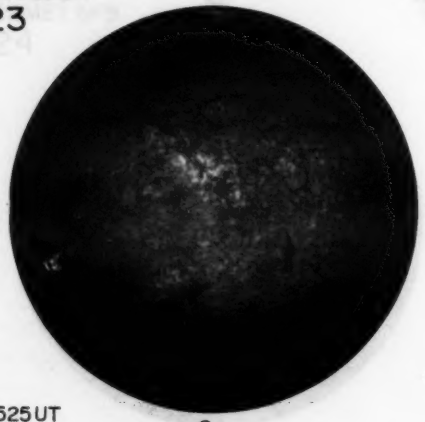
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1355 UT

BOULDER
23

Np

Hα



E W

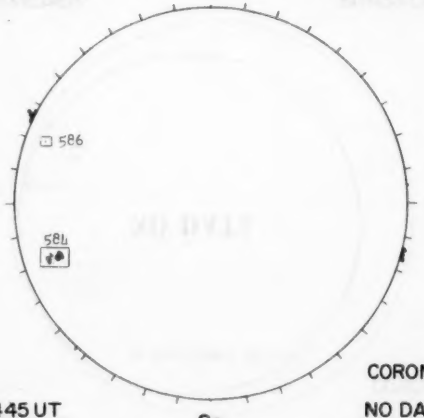
1525 UT

Sp

BOULDER

Np

SUNSPOTS



E W

1445 UT

Sp

CORONA
NO DATA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

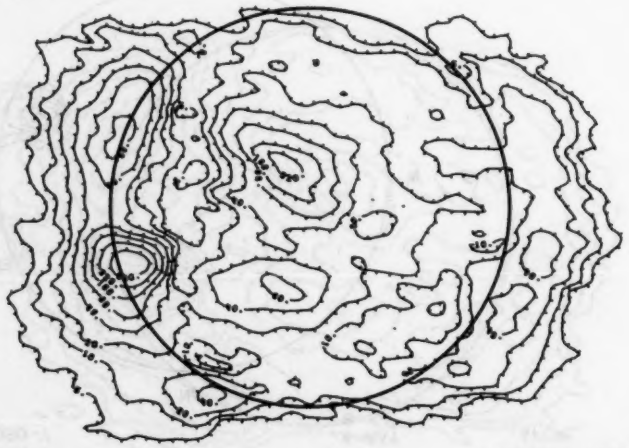
0500-0945 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 39215
ROLL = 7.0°
P-TH = 5.06

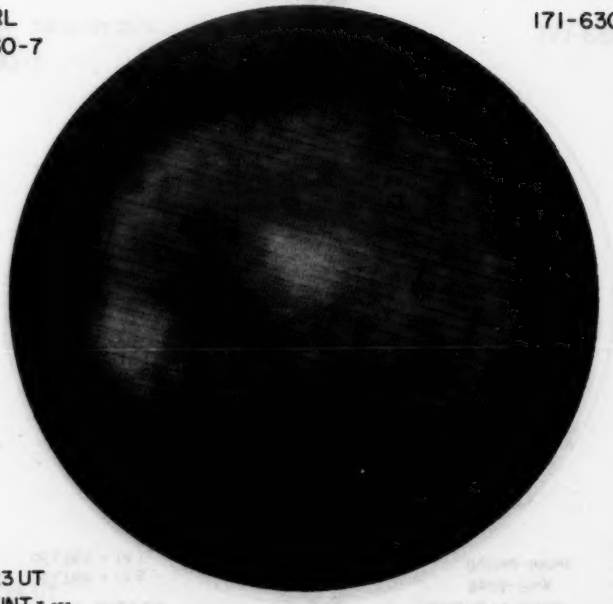
0322 UT

Sp

Np

NRL
OSO-7

171-630A



E W

1123 UT
COUNT = ---

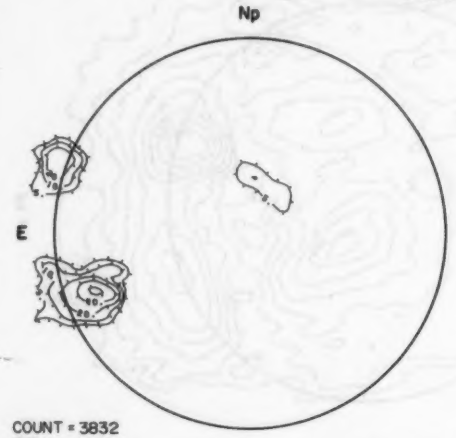
Sp

69
Oct 73

OCTOBER 24, 1973 (P = 25.64, B_o = 5.12, L_o = 253.13)

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3832
ROLL = 7.9°
P-TH = 5.15

0342 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

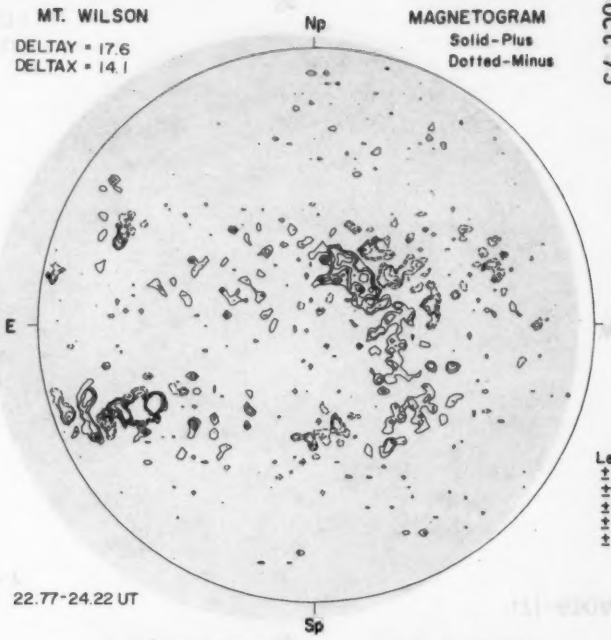
Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.6
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus

70 Oct 73

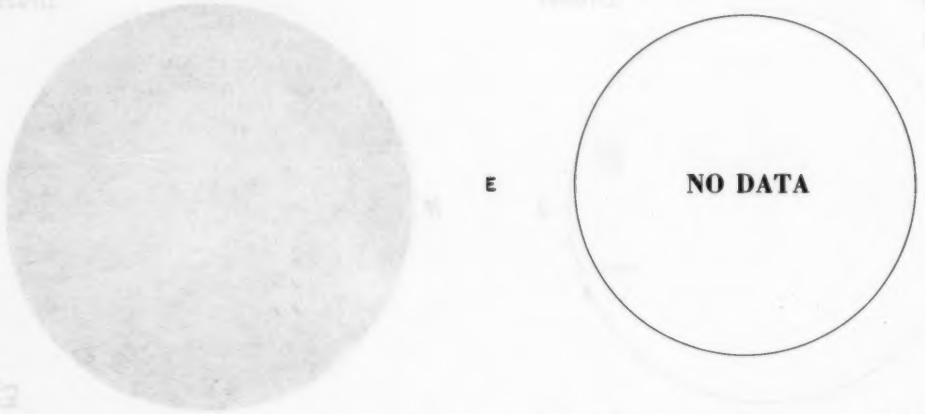


Levels
±5
±10
±20
±40
±80

22.77-24.22 UT

FLEURS, AUSTRALIA

21 cm

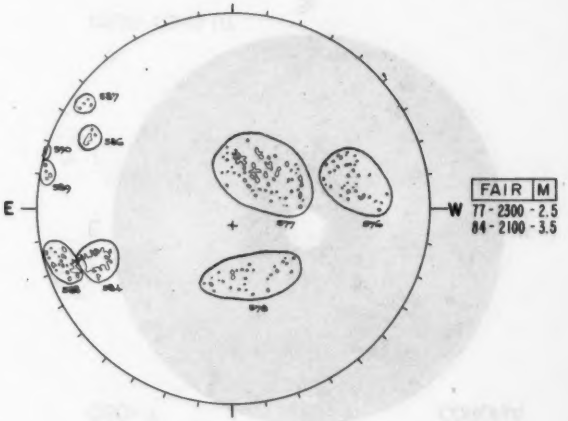


02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1440 UT

S
02-03 UT

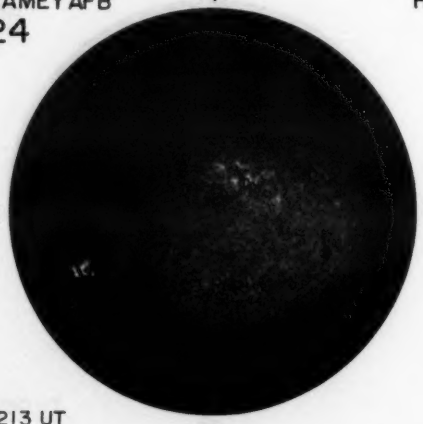
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1440 UT

RAMEY AFB
24

Np

Hα



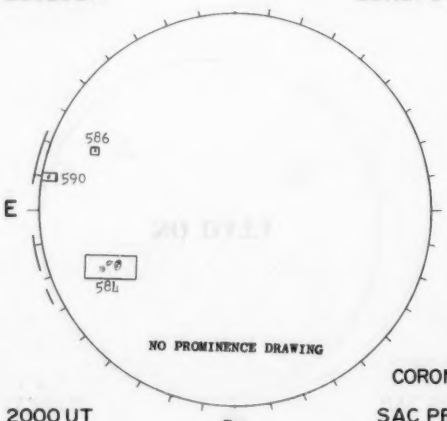
1213 UT

Sp

BOULDER

Np

SUNSPOTS



CORONA

2000 UT

Sp

SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

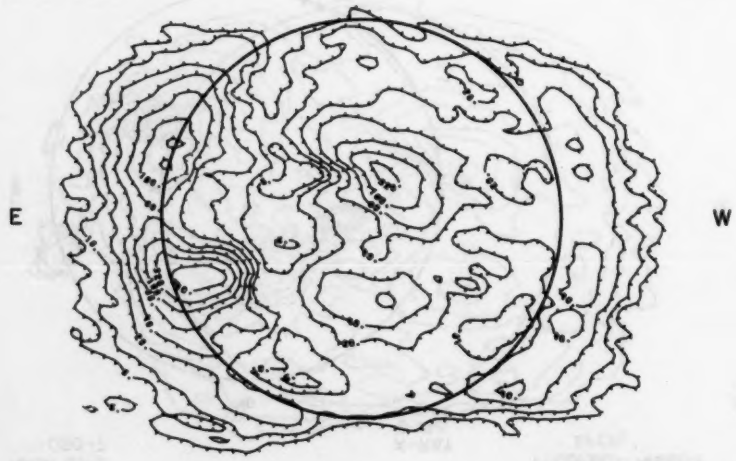
0519-1017 UT

Sp

Np

NASA GSFC
OSO - 7

FE XV
284A



COUNT = 45268
ROLL = 7.9°
P-TH = 5.15

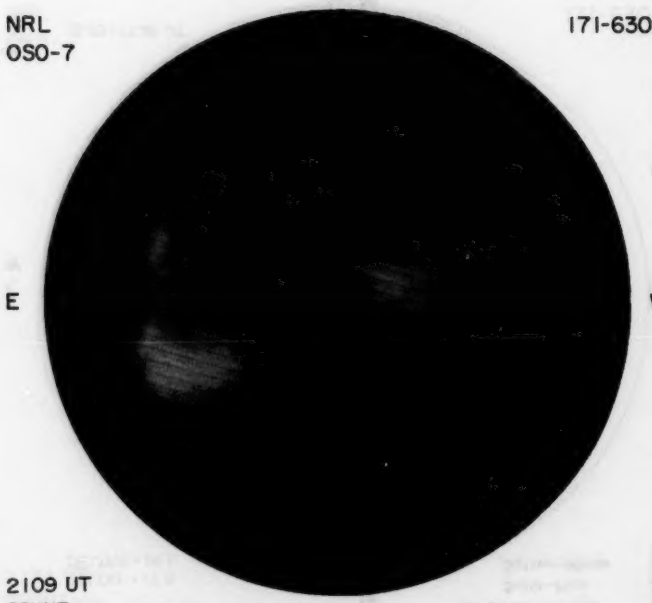
0342 UT

Sp

Np

NRL
OSO-7

171-630A



2109 UT
COUNT = ---

Sp

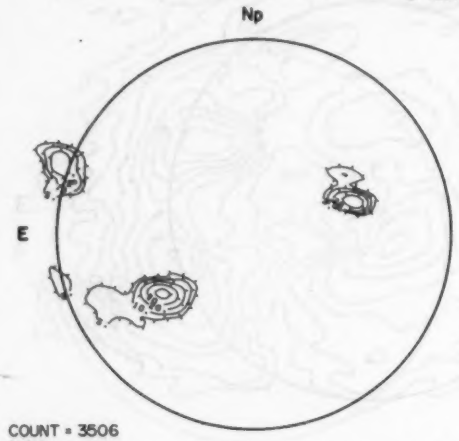
71
Oct 73

OCTOBER 25, 1973 (P = 25.54, B_o = 5.03, L_o = 239.94)

Oct 73 72

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3506
ROLL = 8.4°
P-TH = 5.31

2134 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

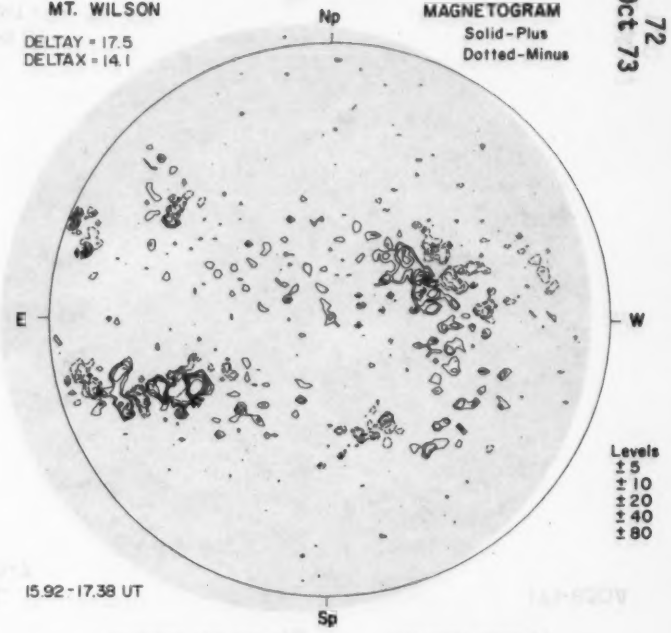
8.6 mm

Contours in Intervals
of 200° K

MT. WILSON

DELTAY = 17.5
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

15.92-17.38 UT

FLEURS, AUSTRALIA

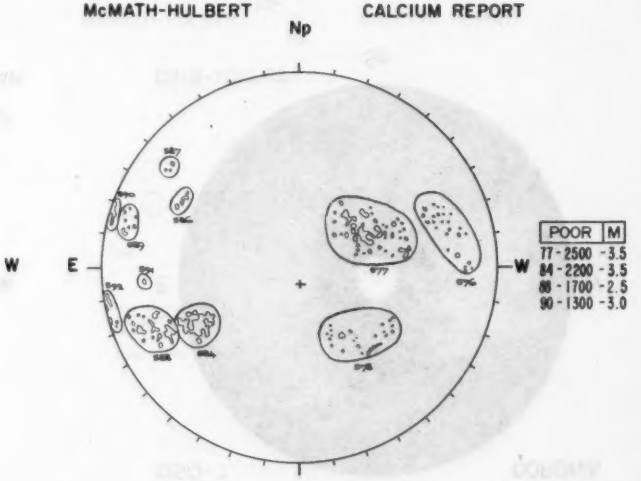
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



POOR	M
77 - 2500	-3.5
84 - 2200	-3.5
88 - 1700	-2.5
90 - 1300	-3.0

1335 UT

02-03 UT

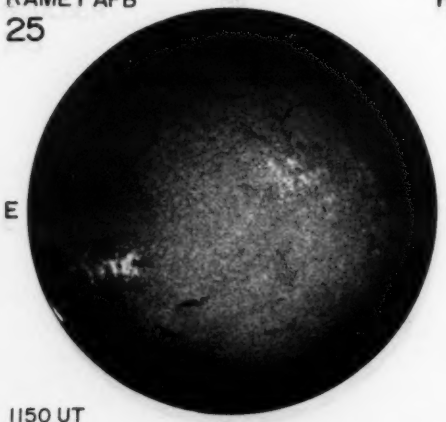
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

1335 UT

RAMEY AFB
25

Np

Hα



E W

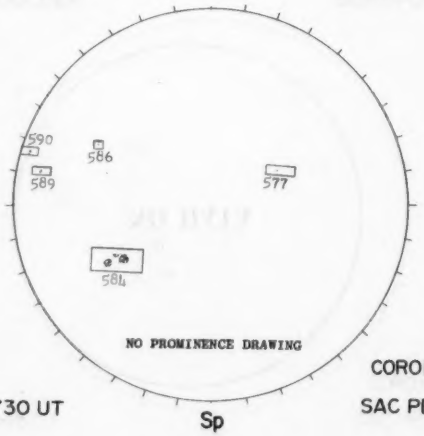
1150 UT

Sp

BOULDER

Np

SUNSPOTS



E W

NO PROMINENCE DRAWING

1730 UT

Sp

CORONA
SAC PEAK

NRL
OSO-7

Np

WHITE - LIGHT
CORONA

E W

0409-0855 UT

Sp

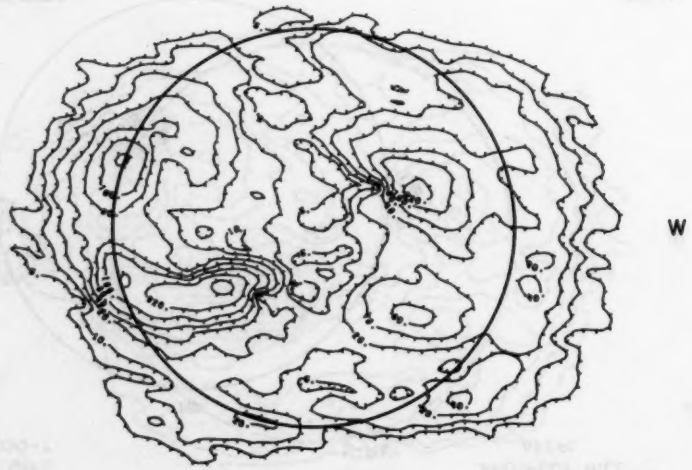
Np

NASA GSFC
OSO-7

FE XV
284A

NRL
OSO-7

171-630A

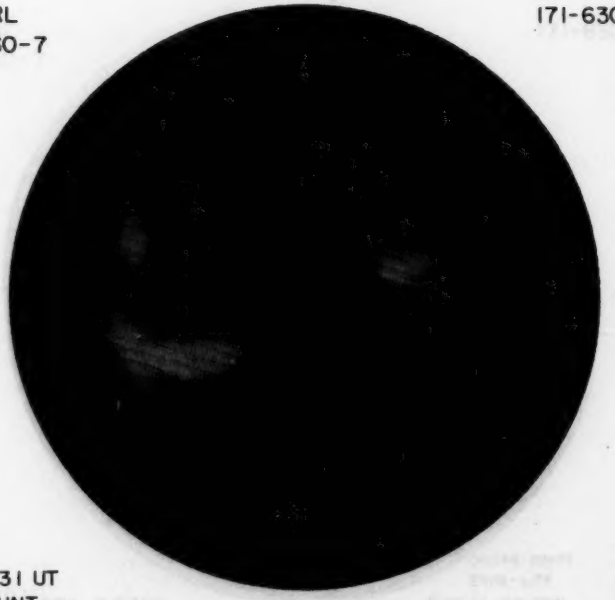


E W

COUNT = 43365
ROLL = 8.4°
P-TH = 5.31

2134UT

Sp



E W

2131 UT
COUNT = ---

Sp

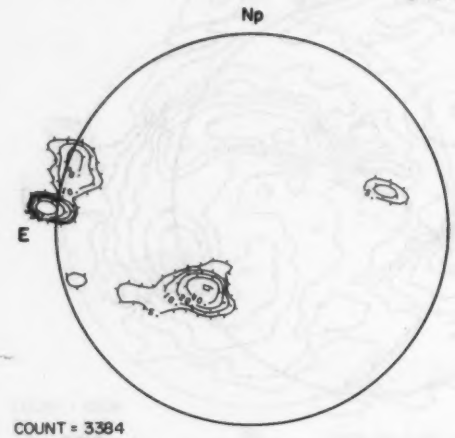
73
Oct 73

OCTOBER 26, 1973 (P = 25.42, B_o = 4.93, L_o = 226.76)

74 Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 3384
ROLL = 8.6°
P-TH = 5.39

2022 UT

Counts per 0.125 sec.

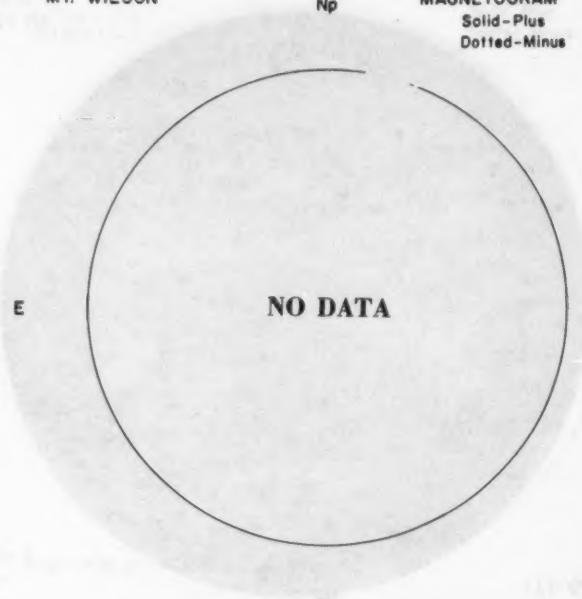
PROSPECT HILL
AFCRL

8.6 mm

Contours in Intervals of 200° K

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

FLEURS, AUSTRALIA

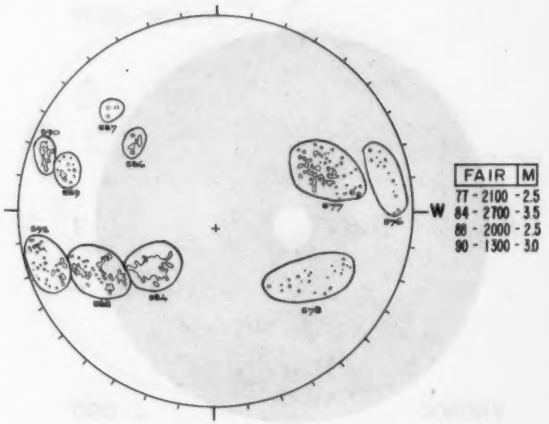
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCULUM REPORT



FAIR	M
77 - 2100	- 2.5
84 - 2700	- 3.5
88 - 2000	- 2.5
90 - 1300	- 3.0

1435 UT

S
02-03 UT

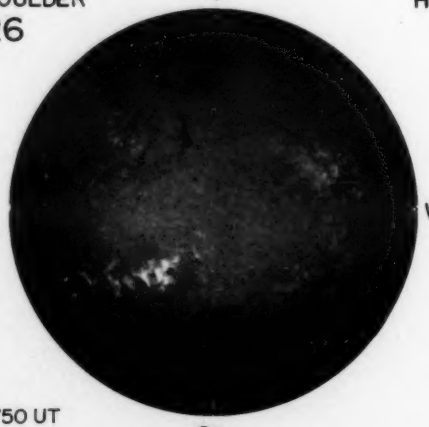
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
1435 UT

BOULDER
26

Np

Hα



E W

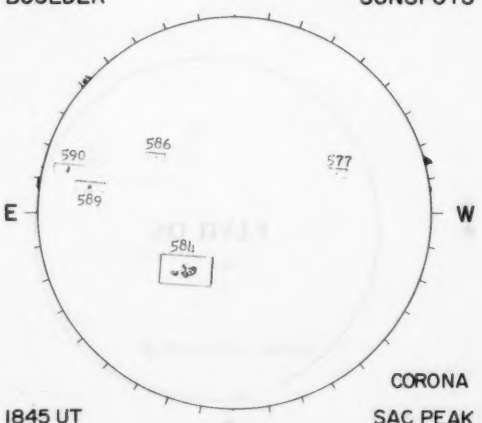
1750 UT

Sp

BOULDER

Np

SUNSPOTS



E W

CORONA

1845 UT

SAC PEAK

Sp

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

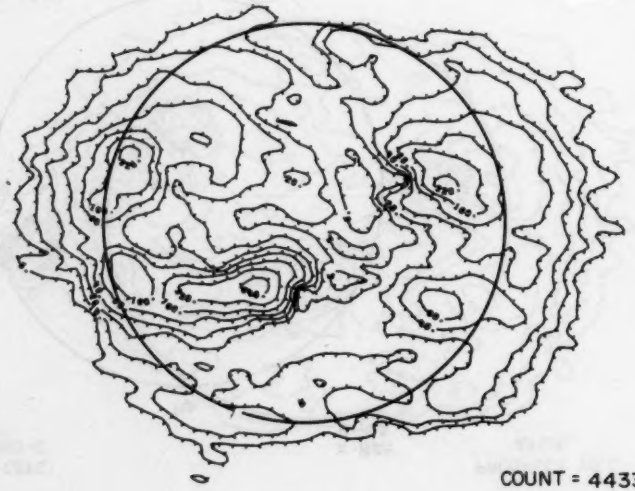
0437-0919 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 44334
ROLL = 8.6°
P-TH = 5.39

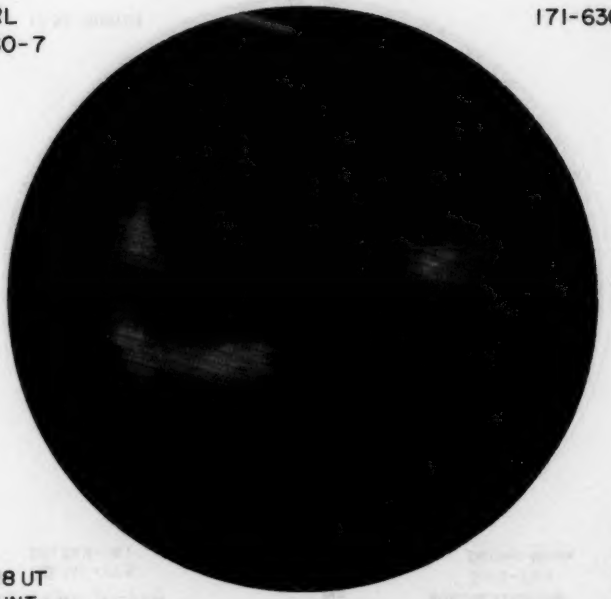
2022 UT

Sp

Np

NRL
OSO-7

171-630A



E W

2018 UT
COUNT = ---

Sp

75
Oct 73

OCTOBER 27, 1973 (P = 25.30, B_o = 4.84, L_o = 213.57)

76 Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A

COUNT = 4397
ROLL = 8.2°
P-TH = 5.47

2044 UT

Counts per 0.125 sec.

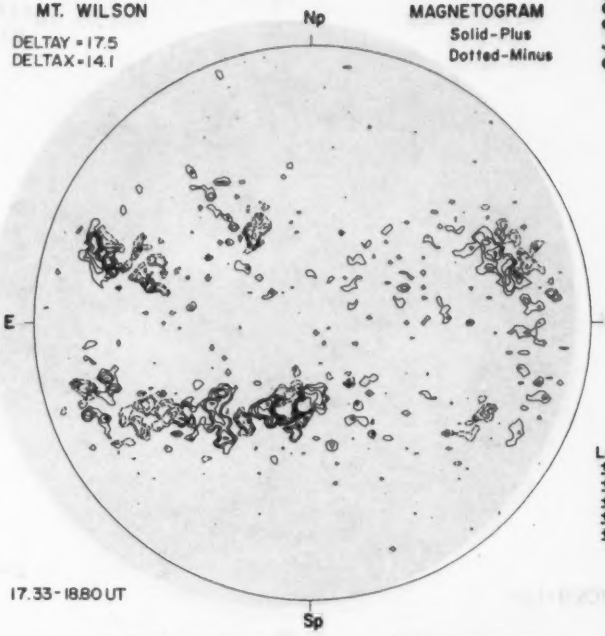
PROSPECT HILL
AFCRL

8.6 mm

Contours in intervals of 200° K

MT. WILSON
DELTAY = 17.5
DELTAX = 14.1

MAGNETOGRAM
Solid - Plus
Dotted - Minus

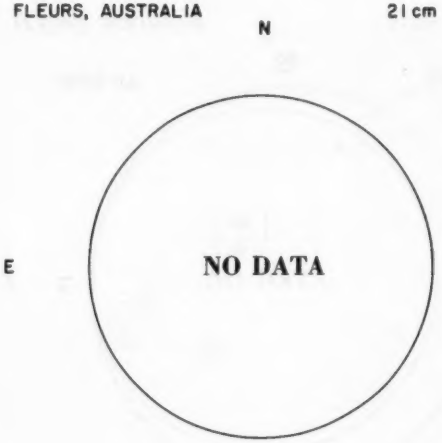


Levels
±5
±10
±20
±40
±80

17.33 - 18.80 UT

FLEURS, AUSTRALIA

21 cm

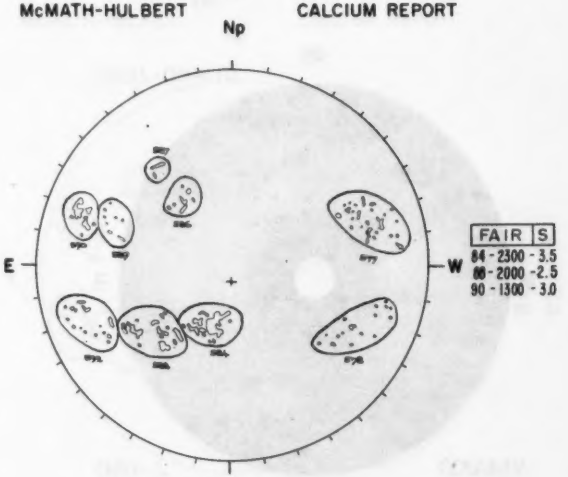


02 - 03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT



1315 UT

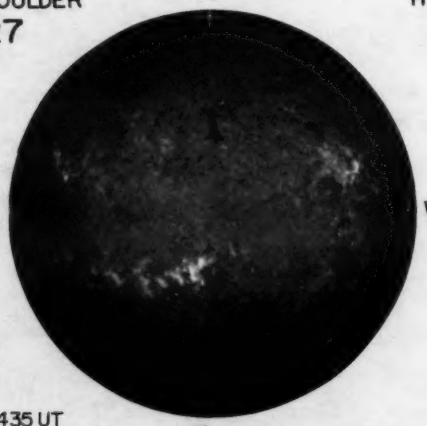
02-03 UT Brightness Unit 1,700° K

1315 UT

BOULDER
27

Np

Hα



E W

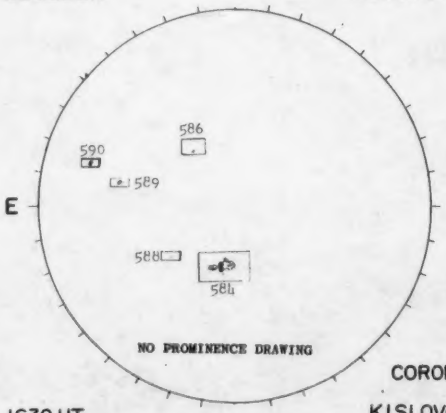
1435 UT

Sp

BOULDER

Np

SUNSPOTS



E W

NO PROMINENCE DRAWING

CORONA

1630 UT

Sp

KISLOVODSK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E W

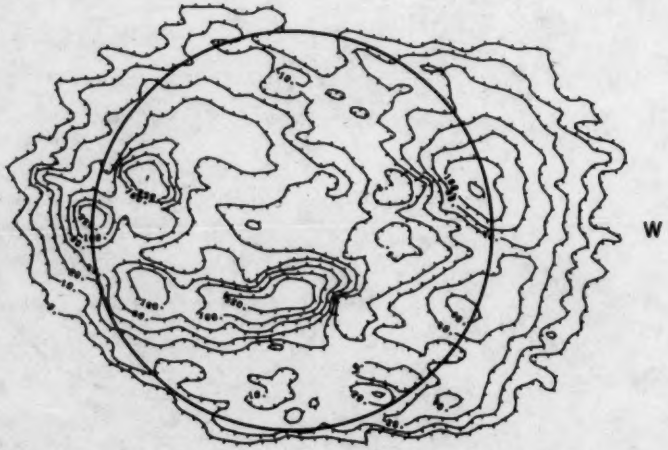
0322-0806 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E W

COUNT = 44901
ROLL = 8.2°
P-TH = 5.47

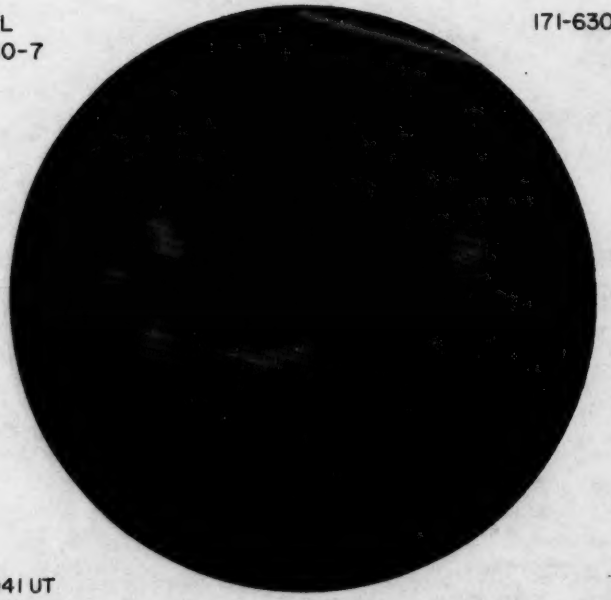
2044 UT

Sp

Np

NRL
OSO-7

171-630A



E W

2041 UT
COUNT = ---

Sp

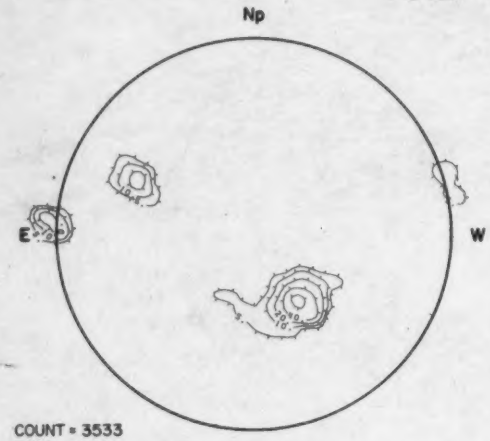
77
Oct 73

OCTOBER 28, 1973 (P = 25.17, B_o = 4.75, L_o = 200.38)

78 Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



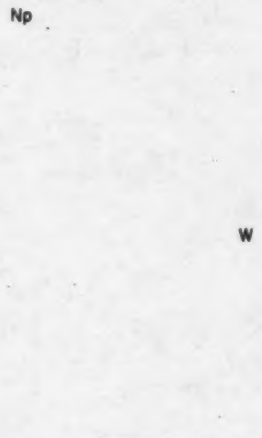
COUNT = 3533
ROLL = 7.4°
P-TH = 5.55

1932 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

8.6 mm

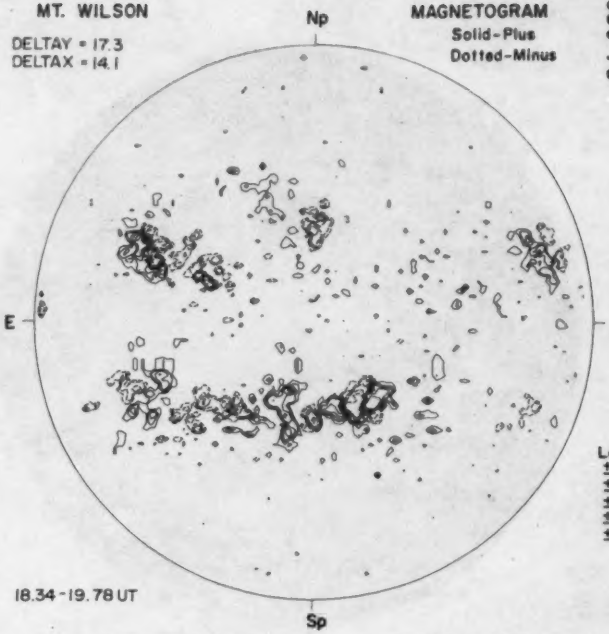


Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.3
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

18.34-19.78 UT

FLEURS, AUSTRALIA

21 cm

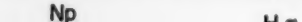
02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

McMATH-HULBERT

CALCIUM REPORT

BOULDER



S

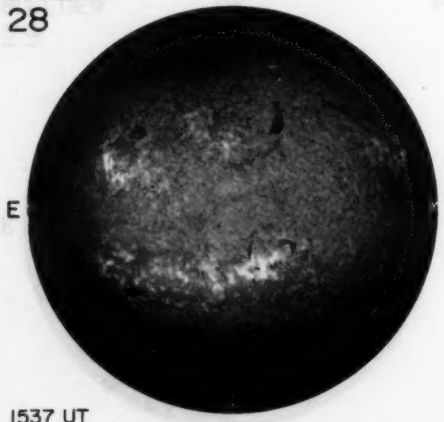
02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

BOULDER
28

Np

Hα



E

W

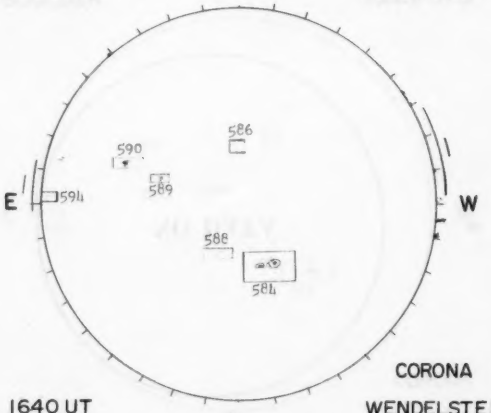
1537 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1640 UT

Sp

CORONA
WENDELSTEIN

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

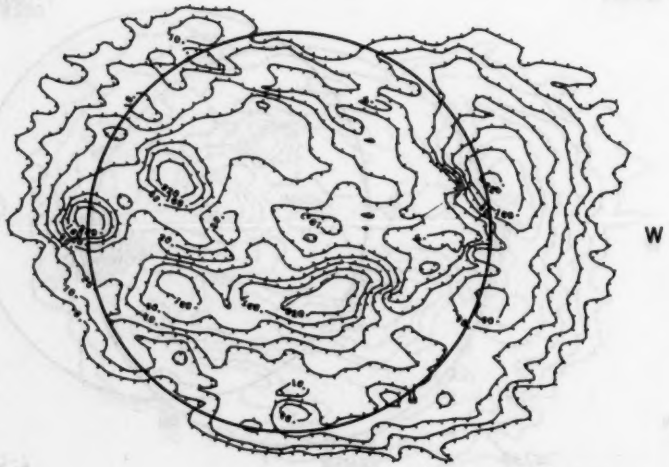
0344-0827 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

COUNT = 46659
ROLL = 7.4°
P-TH = 5.55

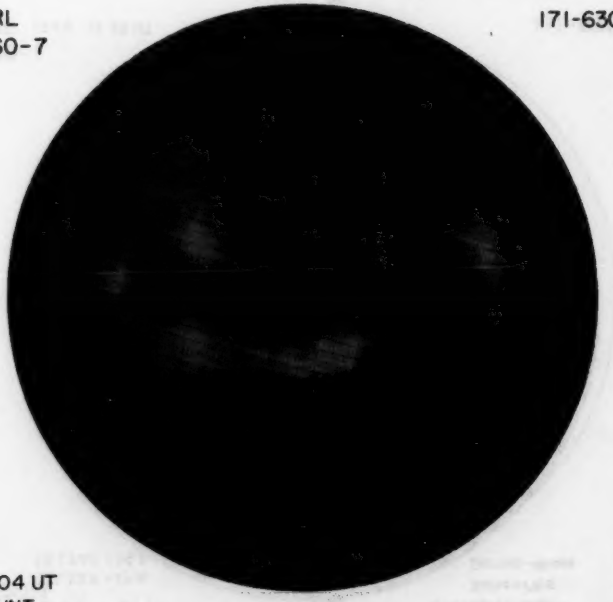
1932 UT

Sp

Np

NRL
OSO-7

171-630A



E

W

2104 UT
COUNT = ---

Sp

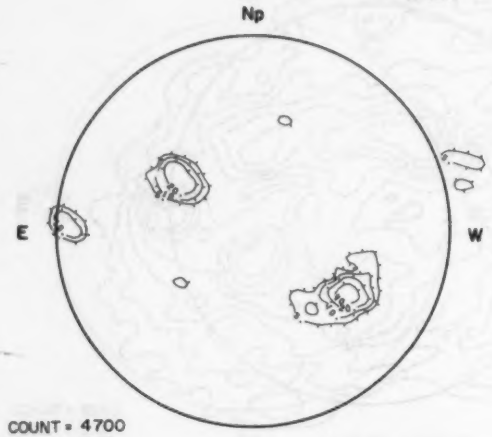
79
Oct 73

OCTOBER 29, 1973 (P = 25.03, B_o = 4.65, L_o = 187.20)

80
Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 4700
ROLL = 7.0°
P-TH = 5.64

2131 UT

Counts per 0.125 sec.

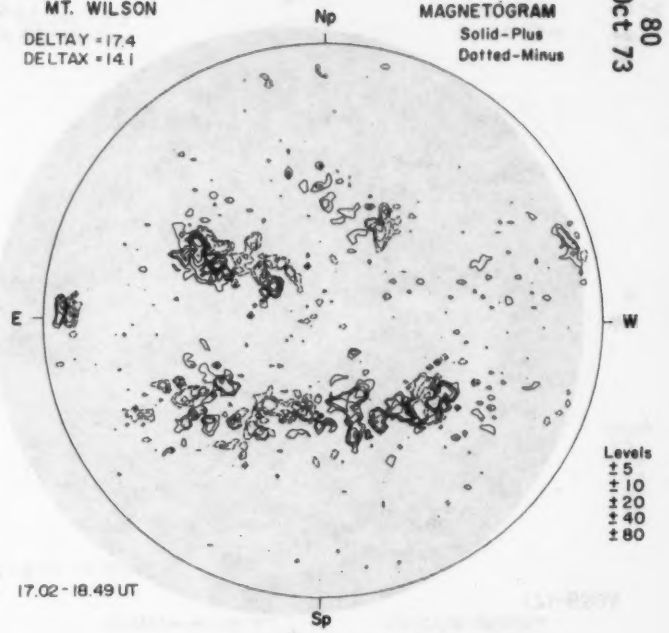
PROSPECT HILL
AFCRL

8.6 mm

Contours in intervals of 200° K

MT. WILSON
DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

17.02 - 18.49 UT

FLEURS, AUSTRALIA

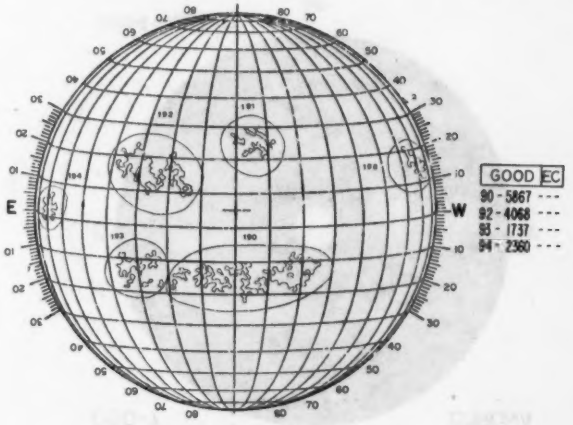
21 cm

02 - 03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CATANIA

CALCIUM REPORT



0840 UT

S
02-03 UT

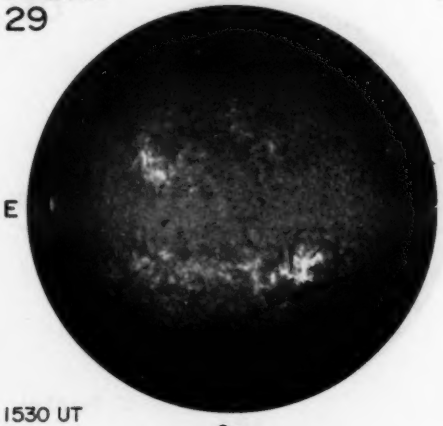
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

Sp
0840 UT

BOULDER
29

Np

Hα



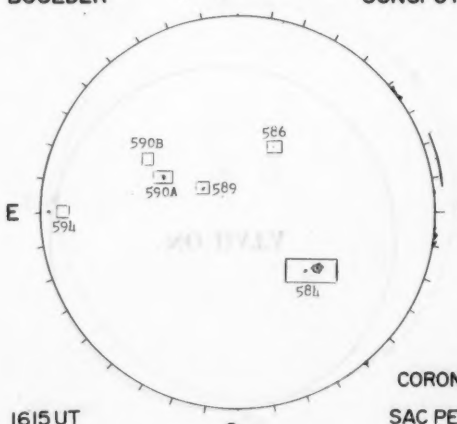
1530 UT

Sp

BOULDER

Np

SUNSPOTS



1615 UT

Sp

CORONA
SAC PEAK

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

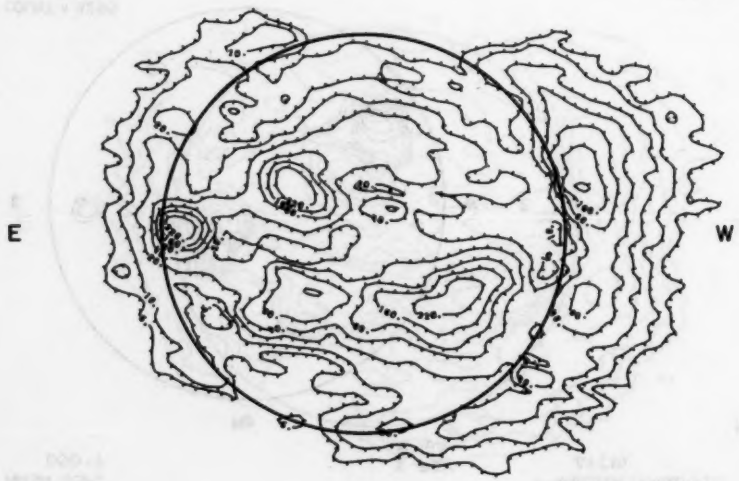
0406-0708 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



COUNT = 44112
ROLL = 7.0°
P-TH = 5.64

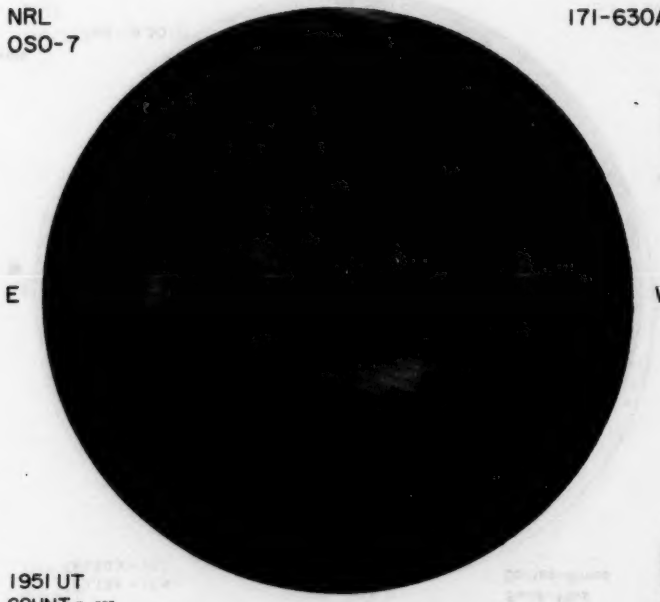
2131 UT

Sp

Np

NRL
OSO-7

171-630A



1951 UT
COUNT = ---

Sp

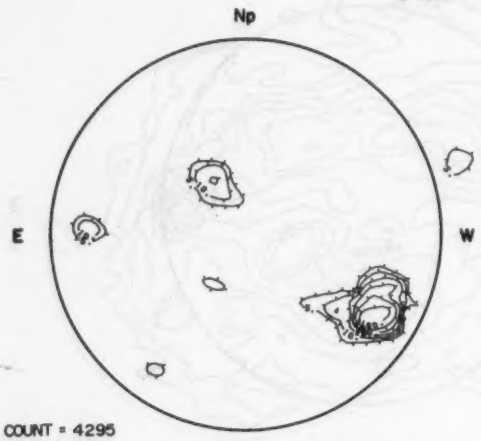
81
Oct 73

OCTOBER 30, 1973 (P= 24.88, B_o = 4.55, L_o = 174.01)

82
Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT = 4295
ROLL = 7.0°
P-TH = 5.71

1841 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

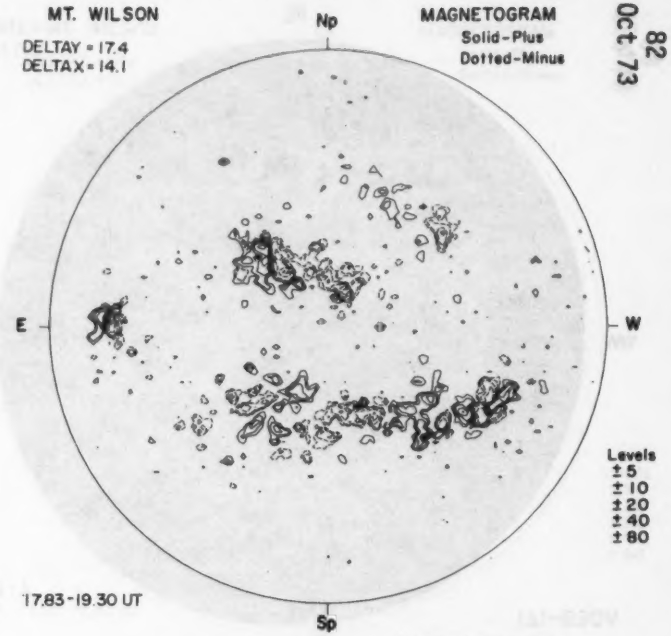
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.4
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

17.83-19.30 UT

FLEURS, AUSTRALIA

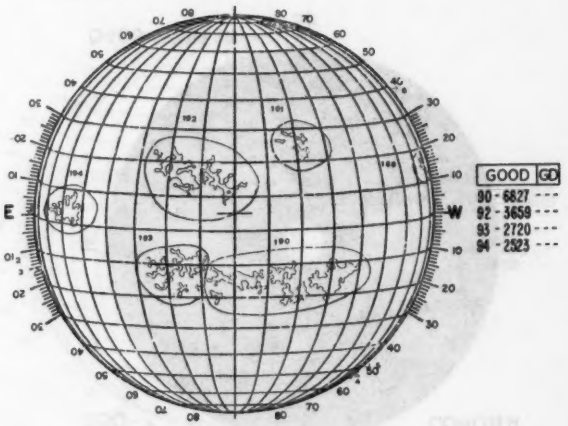
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

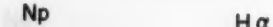
CALCIUM REPORT

CATANIA



0822 UT

BOULDER



Hα

BOULDER

SUNSPOTS

02-03 UT

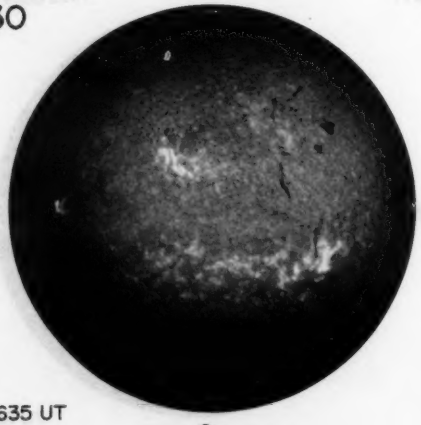
Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

0822 UT

BOULDER
30

Np

Hα



E

W

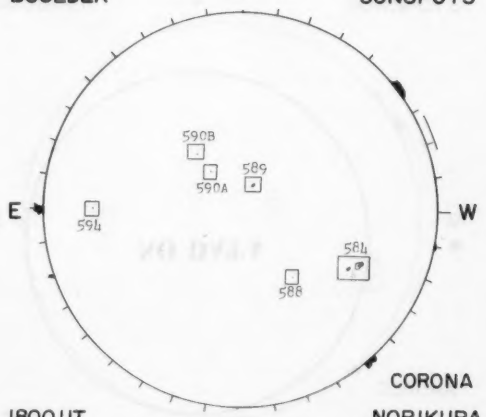
1635 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

1800 UT

Sp

CORONA
NORIKURA

NRL
OSO-7

Np

WHITE-LIGHT
CORONA

E

W

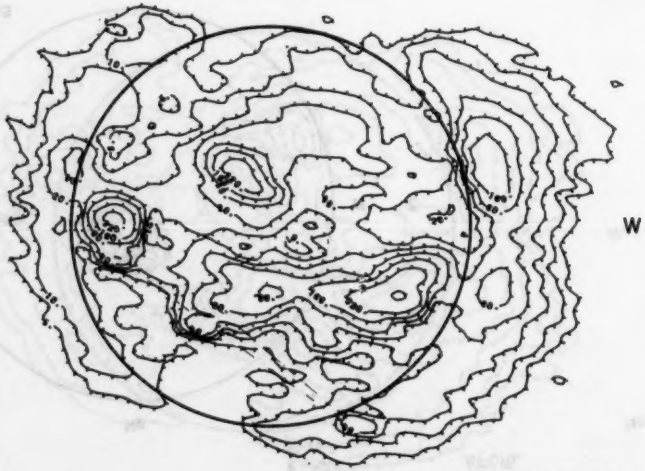
0257-0741 UT

Sp

Np

NASA GSFC
OSO-7

FE XV
284A



E

W

1841 UT

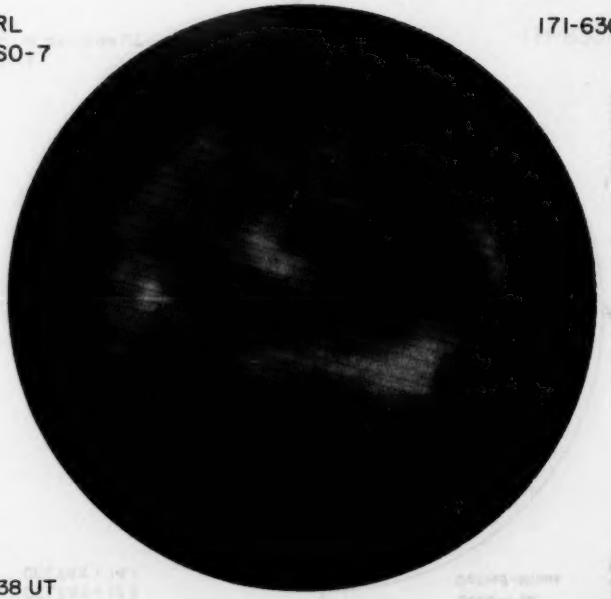
Sp

COUNT = 43335
ROLL = 7.0°
P-TH = 5.71

Np

NRL
OSO-7

171-630A



E

W

1838 UT
COUNT = ---

Sp

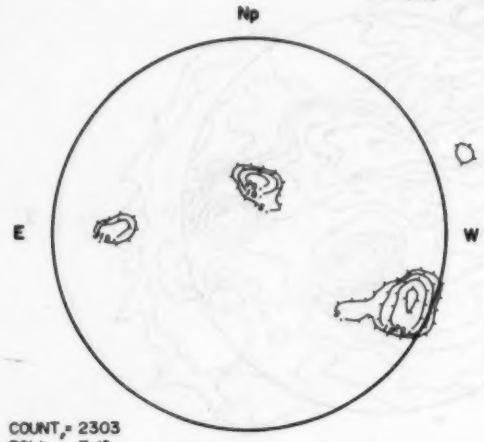
83
Oct 73

OCTOBER 31, 1973 (P= 24.73, B_o = 4.45, L_o = 160.82)

84
Oct 73

NASA GSFC
OSO-7

X-RAY
8-16A



COUNT$_r$ = 2303
ROLL = 7.1°
P-TH = 5.78

1548 UT

Counts per 0.125 sec.

PROSPECT HILL
AFCRL

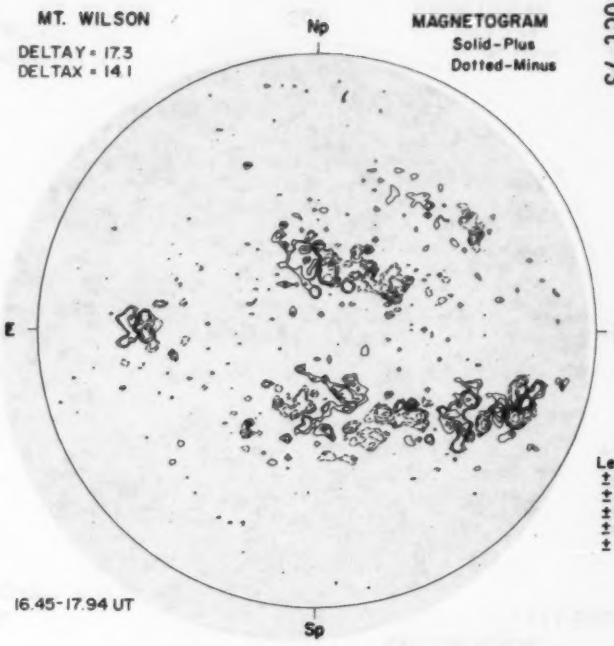
8.6 mm

Contours in Intervals of 200° K

MT. WILSON

DELTAY = 17.3
DELTAX = 14.1

MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
±5
±10
±20
±40
±80

16.45-17.94 UT

FLEURS, AUSTRALIA

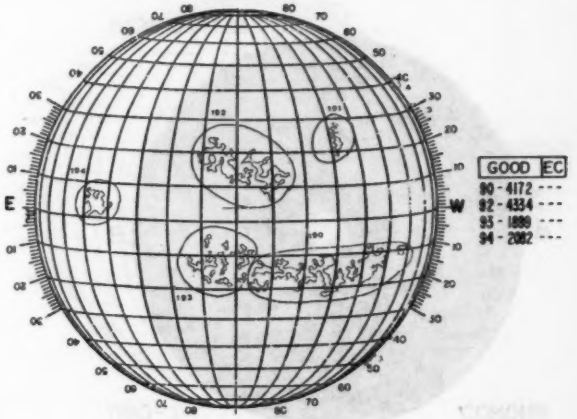
21 cm

02-03 UT

Resolution 3 Minutes of Arc
Brightness Unit 1,700° K

CATANIA

CALCIUM REPORT



GOOD	EC
90 - 4172	---
92 - 4334	---
93 - 1899	---
94 - 2082	---

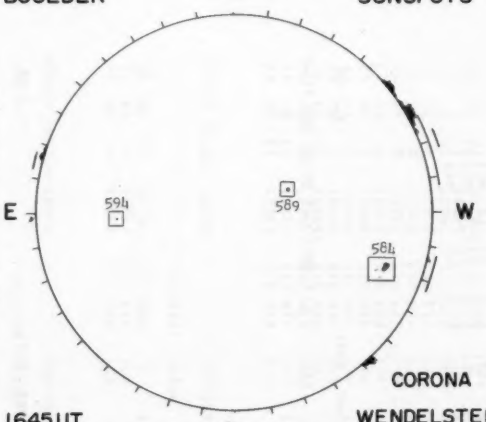
0750 UT

02-03 UT Resolution 3 Minutes of Arc Brightness Unit 1,700° K 0750 UT

BOULDER Np Hα
31

1630 UT Sp

BOULDER Np SUNSPOTS



1645 UT Sp

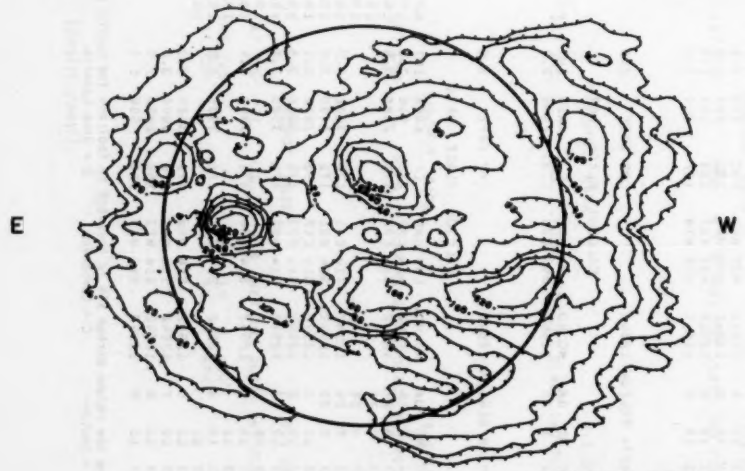
CORONA
WENDELSTEIN

NRL Np WHITE-LIGHT
OSO-7 CORONA

1726-2214 UT Sp

Np

NASA GSFC
OSO-7

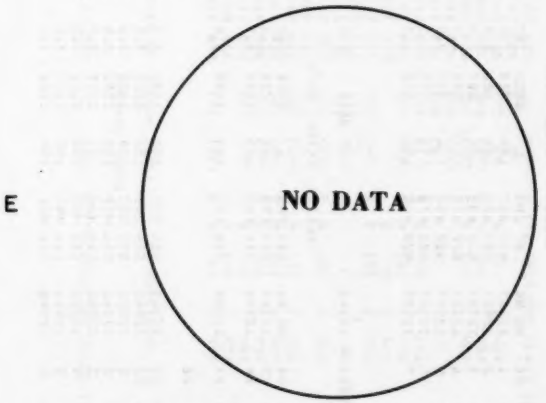


COUNT = 39572
ROLL = 7.1°
P-TH = 5.78

1548 UT Sp

FE XV
284A

NRL
OSO-7



COUNT =

Sp

Np

171-630A

85
Oct 73

REGIONS OF SOLAR ACTIVITY

OCTOBER 1973

MCMATH REGION 12537 — CMP DATE 1.2 — RETURN OF REGION 12508 — ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	1	12537	N22	W07	194	700	2.5	19265	N21	W11	199	(AP)	5	B	100	1	HSX	
73	10	2	12537	N22	W21	194	800	2.5	19265	N22	W28	198	(AP)	5	B	90	1	HSX	
73	10	3	12537	N22	W32	194	800	2.5	19265	N22	W38	199	(AP)	5	G	70	1	HSX	
73	10	4	12537	N22	W47	194	700	2.0	19265	N22	W52	198	(AP)	5	B	70	1	HSX	
73	10	5	12537	N22	W58	194	700	2.5	19265	N21	W62	197	(AP)	4	B	70	1	HSX	
73	10	6	12537	N22	W70	193	700	2.0	19265	N20	W76	198	(AP)	4	B	70	1	HSX	
73	10	7	12537	N22	W82	190	400	1.0											

MCMATH REGION 12540 — CMP DATE 1.5 — RETURN OF REGION 12507 — ROTATION 4

			CALCIUM PLAGE DATA						SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	9	25	12540	S13	E80	188	700	2.5	19267	S19	E75	192	AP		G	40	1	HSX	
73	9	26	12540	S14	E62	193	1000	3.5	19267	S18	E60	194	(AP)	4					
73	9								19268	S14	E60	194	AP		G	80	2	CSO	
73	9	27	12540	S14	E49	193	1400	3.5	19268	S14	E44	197	AP						
73	9								19267	S17	E47	194	(AP)	4	G	20	1	HSX	
73	9	28							19268	S14	E35	193	(AP)	4	G	50	2	CSO	
73	9								19267	S18	E36	192	AP						
73	9	29	12540	S14	E21	192	1400	2.5	19268	S16	E19	194	(BP	2	G	30	2	BXO	
73	9	30	12540	S14	E11	192	1200	3.0	19268	S14	E06	196	(BP)	2	B	20	16	BXI	
73	10	1	12540	S14	W03	190	1000	3.0	19268	S15	W08	196	(BP)	4	B	60	14	CRI	
73	10	2	12540	S14	W17	190	1200	3.5	19268	S14	W25	195	(BY)	2	B	70	14	BXI	
73	10	3	12540	S14	W29	191	1200	3.5	19268	S15	W35	196	(BY)	3	G	30	13	BXI	
73	10	4	12540	S14	W45	192	1100	3.5	19268	S14	W50	196	(BF)	2	B	50	9	BXI	
73	10	5	12540	S14	W57	193	1500	3.5	19268	S15	W61	196	(BF)	2	B	40	7	BXI	
73	10	6	12540	S14	W71	194	1200	3.0											

MCMATH REGION 12541 — CMP DATE 1.6

			CALCIUM PLAGE DATA						SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	9	25	12541	N30	E79	189	200	1.5											
73	9	26	12541	N28	E61	194	400	1.5											
73	9	27	12541	N29	E48	194	400	1.0											
73	9	29	12541	N30	E20	193	400	1.5											
73	9	30	12541	N30	E09	194	400	1.5											
73	10	1	12541	N30	W02	189	500	1.5											
73	10	2	12541	N30	W17	190	500	2.0											
73	10	3	12541	N30	W28	190	500	2.0											
73	10	4	12541	N30	W44	191	500	2.0											
73	10	5	12541	N30	W55	191	600	2.0											
73	10	6	12541	N31	W67	190	500	1.5											
73	10	7	12541	N30	W79	187	300	1.0											

MCMATH REGION 12547 — CMP DATE 2.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	9	30	12547	N53	E30	173	100	2.0											

MCMATH REGION 12542 — CMP DATE 2.9 — RETURN OF REGION 12512 & 12520 — ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	9	26	12542	S14	E85	170	900	3.0	19269	S14	E80	174							
73	9	27	12542	S14	E70	172	2100	3.5	19269	S15	E70	171		3	G	130	6	CSO	
73	9	28							19271	S17	E75	153	AP						
73	9	28							19269	S14	E56	172	(BF)	3	G	120	6	CSO	
73	9	29	12542	S14	E41	172	3600	3.5	19269	S14	E38	175	(B)	3	G	30	13	BXI	
73	9	30	12542	S14	E32	171	3700	3.5	19269	S14	E28	174	(BF)	3	B	20	35	BXI	
73	10	1	12542	S14	E17	170	3500	3.5	19269	S14	E14	174	(B)	4	B	60	30	BXX	
73	10	2	12542	S14	E03	170	3500	3.5	19269	S13	W02	172	(BF)	3	B	60	29	BXI	
73	10	3	12542	S14	W09	171	3500	3.5	19269	S14	W14	175	(BF)	3	G	30	20	BXI	
73	10								19274	S16	W07	168	(BF)	2					
73	10	4	12542	S14	W24	171	3500	3.5	19269	S14	W27	173	(BF)	3	B	60	24	BXI	
73	10								19274	S15	W22	168	(B)	3					
73	10	5	12542	S14	W35	171	3500	3.5	19269	S15	W35	173	(B)	2	B	0	1	AXX	
73	10								19274	S16	W34	169	(BP)	2	B	0	3	BXO	
73	10	6	12542	S14	W48	171	3300	3.0											
73	10	7	12542	S14	W62	170	3000	3.0											
73	10	8	12542	S14	W73	168	2800	2.5											
73	10	9	12542	S16	W87	168	900	1.0											

The new column marked STA is inserted to indicate the source of data for sunspot area, count and classification.
B = Boulder C = Carnarvon G = Gran Canaria (Canary Islands) M = Manila

REGIONS OF SOLAR ACTIVITY

OCTOBER 1973

MCMATH REGION 12543 CMP DATE 3.8 RETURN OF REGION 12510 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	9	26	12543	N14 E88	167	500	1.0	19270	N12 E81	173	AP						
73	9	27	12543	N15 E75	167	800	2.0	19270	N12 E66	175	AP		G	130	1	HSX	
73	9	28						19270	N12 E62	166	(AP)	5	G	160	1	HSX	
73	9	29	12543	N15 E51	162	1200	3.0	19270	N11 E46	167	(AP)	5	G	110	1	HSX	
73	9	30	12543	N16 E42	161	1500	3.0	19270	N12 E34	168	(AP)	6					
73	9							19272	N16 E37	165	(B	1					
73	9							19273	N15 E47	155	(A)	2	B	0	1	AXX	
73	10	1	12543	N16 E27	160	1500	2.5	19270	N12 E21	167	(AP)	5	B	130	1	HSX	
73	10								N15 E33				B	0	1	AXX	
73	10	2	12543	N15 E14	159	1200	2.5	19270	N12 E03	167	(AP)	5	B	130	1	HSX	
73	10							19272	N19 E14	156	B						
73	10							19273	N16 E26	144	B						
73	10	3	12543	N15 E03	159	1200	2.5	19270	N12 W07	168	(AP)	5	G	130	1	HSX	
73	10							19273	N16 E14	147	A						
73	10	4	12543	N15 W12	159	1200	2.5	19270	N12 W21	167	(AP)	5	B	130	1	HSX	
73	10	5	12543	N15 W23	159	1200	2.5	19270	N11 W32	167	(AP)	5	B	130	1	HSX	
73	10	6	12543	N15 W35	158	1100	2.0	19270	N10 W48	168	(AP)	5	B	120	1	HSX	
73	10	7	12543	N15 W48	156	1400	2.5	19270	N11 W59	167	(AP)	5	B	70	1	HSX	
73	10	8	12543	N15 W68	163	1400	3.0		N12 W72				B	100	1	HSX	
73	10	9	12543	N15 W82	163	800	1.0	19270	N12 W88	170	(AP)	4	G	60	1	HSX	

MCMATH REGION 12545 CMP DATE 5.0 RETURN OF REGION 12513 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	9	29	12545	S12 E66	147	1200	1.5										
73	9	30	12545	S12 E58	145	2400	2.5										
73	10	1	12545	S12 E43	144	2500	2.5										
73	10	2	12545	S12 E28	145	2100	2.5										
73	10	3	12545	S12 E17	145	2100	2.5										
73	10	4	12545	S12 E03	144	1800	2.5										
73	10	5	12545	S12 W08	144	1700	2.5		S12 W13				B	0	1	AXX	
73	10	6	12545	S12 W21	144	1700	2.5	19275	S10 W26	146	(AP)	3	B	10	3	AXX	
73	10	7	12545	S12 W34	142	1800	2.5	19275	S10 W39	147	(AP)	2	B	0	1	AXX	
73	10	8	12545	S11 W48	143	1800	3.0		S09 W54				B	10	1	AXX	
73	10	9	12545	S12 W62	143	1800	3.0	19275	S08 W67	149	(B)	2	G	20	6	BXI	
73	10	10	12545	S12 W77	145	1300	3.0	19275	S08 W82	147	A		R	0	2	BXO	
73	10	11	12545	S16 W88	144	400	1.5										

MCMATH REGION 12549 CMP DATE 7.6

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	4	12549	N17 E37	110	200	2.0										
73	10	5	12549	N17 E26	110	200	1.5										

MCMATH REGION 12558 CMP DATE 8.9

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	11	12558	N51 W36	92	100	1.0										
73	10	12	12558	N52 W47	90	200	1.0										

MCMATH REGION 12565 CMP DATE 10.0

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	13	12565	N19 W52	78	100	1.0										

MCMATH REGION 12550 CMP DATE 10.9

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	7	12550	S01 E44	64	100	1.5										
73	10	8	12550	S01 E31	64	300	2.5		S01 E29				B	10	5	BXO	
73	10	9	12550	S01 E17	64	200	2.0		S01 E20				G	10	1	AXX	
73	10	10	12550	S01 E03	65	100	1.5										

REGIONS OF SOLAR ACTIVITY

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MCMATH REGION 12566 CMP DATE 11.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	13	12566	N12 W36	62	100	1.0									

MCMATH REGION 12555 CMP DATE 11.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	9	12555	N14 E22	59	100	1.5									

MCMATH REGION 12573 CMP DATE 12.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	16	12573	S08 W56	47	100	2.0									
73	10	17	12573	S08 W71	48	100	1.0									

MCMATH REGION 12556 CMP DATE 12.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	9	12556	N12 E40	41	100	1.5									
73	10	10	12556	N12 E27	41	100	1.0									
73	10	11	12556	N12 E13	43	200	1.5									
73	10	12	12556	N12 E00	43	200	2.0									
73	10	13	12556	N12 W19	45	400	2.5	19276	N13 W15	45	(BP)	3	H	10	2	AXX
73	10	14	12556	N12 W27	44	700	3.0	19276	N13 W29	46	(BP)	3	B	20	16	BXO
73	10	15	12556	N12 W43	46	700	3.0	19276	N13 W46	50	(AP)	3	G	20	3	CRO
73	10	16	12556	N12 W57	48	600	3.0	19276	N14 W58	48	(BP	3	B	20	2	BXO
73	10	17	12556	N12 W70	47	900	3.5	19276	N14 W68	46	(BF)	3	B	70	4	CSO
73	10	18	12556	N13 W83	48	900	3.0	19276	N15 W81	45	BF)	2	B	40	1	AXX

MCMATH REGION 12574 CMP DATE 12.6

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	16	12574	S15 W52	43	100	1.5									
73	10	17	12574	S15 W65	42	100	1.0									

MCMATH REGION 12552 CMP DATE 12.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	7	12552	S14 E69	39	200	1.5									
73	10	8	12552	S14 E54	41	300	1.5									
73	10	9	12552	S14 E41	40	200	1.5									
73	10	10	12552	S15 E26	40	200	1.0									
73	10	11	12552	S15 E15	41	200	1.5									

MCMATH REGION 12551 CMP DATE 12.9

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	7	12551	N26 E73	35	200	1.5									
73	10	8	12551	N26 E57	38	300	2.0									

MCMATH REGION 12563 CMP DATE 13.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	12	12563	N29 E09	34	100	2.0									

MCMATH REGION 12570 CMP DATE 13.3

				CALCIUM PLAGE DATA				SUNSPOT DATA								9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS INT FLUX
73	10	15	12570	S23 W31	34	200	2.0									

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MCMATH REGION 12571 CMP DATE 13.3

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	15	12571	S04 W30	33	500	4.0	19278	S04 W31	35	(B)	3	G	0	2	BXO	
73	10	16	12571	S04 W43	34	600	3.0	19278	S03 W46	36	(B)	4	B	50	2	BXO	
73	10	17	12571	S04 W57	34	700	3.0	19278	S03 W57	35	(BF)	3	B	40	3	BXO	
73	10	18	12571	S04 W71	36	900	3.0	19278	S03 W78	42	(AP)	3	B	20	1	AXX	
73	10	19	12571	S04 W85	37	800	1.5										

MCMATH REGION 12553 CMP DATE 13.5

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	7	12553	N07 E78	30	300	1.0										
73	10	8	12553	N07 E65	30	300	1.0										

MCMATH REGION 12557 CMP DATE 13.7

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	10	12557	S08 E40	28	200	1.5										

MCMATH REGION 12559 CMP DATE 13.8

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	11	12559	S03 E29	27	100	1.5										

MCMATH REGION 12554 CMP DATE 14.2

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	8	12554	S16 E75	20	400	1.0										
73	10	9	12554	S16 E60	21	300	1.5										
73	10	10	12554	S16 E47	21	200	1.0										
73	10	11	12554	S16 E34	22	200	1.0										
73	10	12	12554	S16 E20	23	200	1.5										
73	10	13	12554	S16 E04	22	200	1.0										
73	10	14	12554	S16 W05	22	300	1.0										
73	10	15	12554	S16 W20	23	200	1.0										

MCMATH REGION 12568 CMP DATE 14.2

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	14	12568	S03 W04	21	100	2.0										

MCMATH REGION 12560 CMP DATE 15.8

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	11	12560	N15 E53	3	500	1.0										
73	10	12	12560	N15 E40	3	500	1.0										
73	10	13	12560	N15 E24	2	400	1.0										
73	10	14	12560	N15 E16	1	500	1.5										
73	10	15	12560	N15 E02	1	400	1.0										
73	10	16	12560	N15 W10	1	500	1.5										
73	10	17	12560	N15 W24	1	500	1.5										
73	10	18	12560	N15 W37	2	500	1.5										
73	10	19	12560	N15 W50	2	500	1.0										
73	10	20	12560	N15 W65	4	400	1.0										
73	10	21	12560	N15 W76	1	400	1.0										

MCMATH REGION 12564 CMP DATE 16.2

				CALCIUM PLAGE DATA				SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	12	12564	N41 E48	356	100	1.0										

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MCMATH REGION 12562 CMP DATE 16.8 RETURN OF REGION 12522 ROTATION 2

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	11	12562	S09 E69	348	500	1.0									
73	10	12	12562	S09 E54	350	500	1.0									
73	10	13	12562	S09 E38	349	700	1.0	19277	S06 E46	345	A					
73	10	14	12562	S09 E28	350	600	2.0	19277	S06 E34	344	A					
73	10	15	12562	S09 E15	349	500	1.5									
73	10	16	12562	S07 E04	347	500	2.0									
73	10	17	12562	S08 W11	348	500	1.5									
73	10	18	12562	S08 W24	349	500	1.0									
73	10	19	12562	S08 W37	349	500	1.5									
73	10	20	12562	S07 W48	347	400	1.0									
73	10	21	12562	S09 W59	344	500	2.0									
73	10	22	12562	S09 W73	345	400	1.5									

MCMATH REGION 12561 CMP DATE 17.3 RETURN OF REGION 12524 ROTATION 3

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	11	12561	N17 E75	342	300	1.0									
73	10	12	12561	N17 E62	342	300	1.0									

MCMATH REGION 12569 CMP DATE 18.1

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	14	12569	S13 E46	332	200	2.5									
73	10	15	12569	S13 E33	331	200	2.0									
73	10	16	12569	S13 E20	331	400	2.0									
73	10	17	12569	S13 E07	330	300	2.0									
73	10	18	12569	S13 W07	332	200	1.5									

MCMATH REGION 12567 CMP DATE 18.3

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	13	12567	N12 E59	328	100	1.0									
73	10	14	12567	N12 E49	329	100	1.0									

MCMATH REGION 12572 CMP DATE 18.3

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	15	12572	S43 E35	329	100	1.0									

MCMATH REGION 12585 CMP DATE 18.8

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	22	12585	S36 W50	322	200	1.0									

MCMATH REGION 12579 CMP DATE 19.0

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	19	12579	S35 W08	320	100	1.5									

MCMATH REGION 12580 CMP DATE 19.4

			CALCIUM	PLAGE	DATA		SUNSPOT	DATA						9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	19	12580	N02 W02	314	100	1.0									
73	10	20	12580	N02 W15	314	200	2.0									
73	10	21	12580	N02 W29	314	100	1.0									
73	10	22	12580	N02 W43	315	100	1.0									

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MCMATH REGION 12576 CMP DATE 21.3 RETURN OF REGION 12530 & 12533 ROTATION 3 & 6

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	16	12576	N09 E60	291	500	2.0									
73	10	17	12576	N08 E47	290	500	1.0									
73	10	18	12576	N09 E35	290	700	1.5									
73	10	19	12576	N09 E22	290	900	1.5									
73	10	20	12576	N09 E10	289	700	1.5									
73	10	21	12576	N09 W01	286	900	1.5									
73	10	22	12576	N09 W13	285	700	1.0									
73	10	23	12576	N09 W25	284	800	1.0									
73	10	24	12576	N10 W40	285	800	1.5									
73	10	25	12576	N11 W52	285	800	1.5									
73	10	26	12576	N10 W65	284	500	1.0									

MCMATH REGION 12577 CMP DATE 23.9 RETURN OF REGION 12535 ROTATION 4

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	17	12577	N13 E82	255	1000	1.5									
73	10	18	12577	N14 E72	253	2600	2.5									
73	10	19	12577	N15 E59	253	2500	3.0									
73	10	20	12577	N16 E45	254	2500	3.0									
73	10	21	12577	N15 E30	255	2500	3.0									
73	10	22	12577	N15 E17	255	2500	3.0									
73	10	23	12577	N15 E04	255	2300	3.0									
73	10	24	12577	N15 W10	255	2300	2.5									
73	10	25	12577	N15 W23	256	2500	3.5	19282	N15 W24	252	(BF)	4	8	30	3	CRO
73	10	26	12577	N15 W36	255	2100	2.5	19282	N15 W37	251	BF)	2	8	0	1	AXX
73	10	27	12577	N15 W48	254	1800	2.0									

MCMATH REGION 12578 CMP DATE 24.1 RETURN OF REGION 12534 ROTATION 3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	18	12578	S15 E68	257	400	1.0									
73	10	19	12578	S15 E56	256	600	1.0									
73	10	20	12578	S15 E44	255	700	2.0									
73	10	21	12578	S15 E34	251	900	2.0									
73	10	22	12578	S15 E20	252	700	1.5									
73	10	23	12578	S15 E07	252	600	1.5									
73	10	24	12578	S15 W06	251	500	1.5									
73	10	25	12578	S15 W19	252	600	1.5									
73	10	26	12578	S15 W32	251	600	1.5									
73	10	27	12578	S15 W42	248	600	1.0									

MCMATH REGION 12582 CMP DATE 26.1

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	21	12582	S14 E59	226	200	2.5									
73	10	22	12582	S14 E46	226	100	2.0									

MCMATH REGION 12593 CMP DATE 26.6

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	11	1	12593	S10 W80	219	100	2.0		S09 W77			B	70	2	CSO	

MCMATH REGION 12583 CMP DATE 27.1 RETURN OF REGION 12537* ROTATION 3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT	CLASS	INT FLUX
73	10	21	12583	N18 E73	212	200	1.5									
73	10	22	12583	N18 E60	212	300	1.0									
73	10	23	12583	N18 E46	213	300	1.0									

*An asterisk beside the "Return of Region" number indicates that the new region is only part of the area of the old region.

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MCMATH REGION 12584 CMP DATE 28.0 — RETURN OF REGION 12540 ROTATION 5

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	21	12584	S10 E79	206	800	3.5	19279	S13 E74	211	(AP)	2	B	40	1	HSX	
73	10	22	12584	S13 E73	199	2000	4.0	19279	S13 E64	203	(BP	4	B	260	12	DAO	
73	10	23	12584	S14 E62	197	2400	4.0		S14 E56				B	450	10	DAO	
73	10	24	12584	S13 E47	198	2100	3.5	19279	S13 E43	202	(BP)	5	B	440	11	DKO	
73	10	25	12584	S13 E34	199	2200	3.5	19279	S13 E26	202	(BP)	5	B	370	9	DKO	
73	10	26	12584	S13 E20	199	2700	3.5	19279	S13 E12	202	(BP)	5	B	470	25	DKI	
73	10	27	12584	S13 E06	200	2300	3.5	19279	S12 E04	201	(D)	5	B	540	40	DKI	
73	10	28						19279	S12 W09	201	BP		B	470	63	DHI	
73	10	29						19279	S12 W23	202	(BP)	5	B	360	20	DKI	
73	10	30						19279	S13 W36	201	(BP)	5	B	240	13	DKI	
73	10	31						19279	S14 W50	200	(BP)	5	R	380	6	DKO	
73	11	1	12584	S13 W62	201	2300	3.5	19279	S15 W65	202	(BP)	4	B	170	11	DAI	
73	11	2	12584	S13 W77	202	2000	3.5	19279	S13 W76	200	(AP)	4	B	140	34	CSI	
73	11		12584						S09 W69				B	70	5	CSO	
73	11	3	12584	S13 W86	199	700	1.5										

MCMATH REGION 12586 CMP DATE 28.8 — RETURN OF REGION 12537 ROTATION 3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	22	12586	N23 E65	187	400	1.0	19280	N20 E73	194	AP						
73	10	23	12586	N23 E67	192	700	1.0		N20 E65				B	10	1	AXX	
73	10	24	12586	N23 E54	191	400	1.5	19280	N21 E51	194	(AP)	3	B	10	1	AXX	
73	10	25	12586	N23 E41	192	300	1.5	19280	N21 E35	193	(AP)	4	B	10	1	AXX	
73	10	26	12586	N23 E28	191	400	2.0	19280	N21 E22	192	(AP)	3	B	10	1	AXX	
73	10	27	12586	N23 E16	190	400	1.5	19280	N21 E13	192	(AP)	3	B	10	5	AXX	
73	10	28						19280	N21 E00	192	AP		B	0	2	AXX	
73	10	29						19280	N24 W11	190	(AP)	2	B	0	2	AXX	
73	11	1	12586	N25 W50	189	300	1.5										
73	11	2	12586	N25 W65	190	400	1.5										
73	11	3	12586	N25 W78	191	400	1.0										

MCMATH REGION 12588 CMP DATE 29.5 — RETURN OF REGION 12542 ROTATION 3

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	24	12588	S15 E68	177	1500	2.0										
73	10	25	12588	S15 E54	179	1700	2.5										
73	10	26	12588	S15 E40	179	2000	2.5										
73	10	27	12588	S16 E26	180	2000	2.5		S10 E19				B	0	3	AXX	
73	10	28							S10 E06				B	0	4	BXO	
73	10	30						19286	S17 W15	180	(AP)	2	B	0	1	AXX	
73	10							19287	S12 W07	172	(AP)	2					
73	11	1	12588	S15 W38	177	2000	2.5		S15 W48				B	20	3	CSO	
73	11		12588						S11 W31				B	30	3	CSO	
73	11	2	12588	S14 W51	176	1800	3.0										
73	11	3	12588	S14 W62	175	1100	2.5										
73	11	4	12588	S15 W75	174	1100	2.5										
73	11	5	12588	S15 W88	174	700	1.5										

MCMATH REGION 12591 CMP DATE 29.6

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	25	12591	S01 E53	180	100	1.5										

MCMATH REGION 12587 CMP DATE 29.7 — RETURN OF REGION 12541 ROTATION 2

CALCIUM PLAGE DATA — SUNSPOT DATA — 9.1 CM

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	24	12587	N34 E66	179	300	1.0										
73	10	25	12587	N34 E54	179	200	1.0										
73	10	26	12587	N34 E41	178	200	1.0										
73	10	27	12587	N34 E28	178	300	1.0										
73	11	1	12587	N33 W40	179	200	1.5										
73	11	2	12587	N33 W50	175	200	1.0										

REGIONS OF SOLAR ACTIVITY

OCTOBER 1973

MCMATH REGION 12589 CMP DATE 30.6 RETURN OF REGION 12543* ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	24	12589	N11 E75	170	200	1.0	19281	N12 E86	159	AP						
73	10	25	12589	N12 E65	168	400	1.0	19281	N12 E59	169	(AP)	3	B	50	1	HSX	
73	10	26	12589	N12 E52	167	400	1.0	19281	N12 E47	167	(AP)	4	B	50	1	HSX	
73	10	27	12589	N14 E40	166	400	1.0	19281	N12 E37	168	(AP)	5	B	50	1	HSX	
73	10	28						19281	N12 E24	168	AP		B	60	2	HSX	
73	10	29						19281	N12 E11	168	(AP)	4	B	30	1	HSX	
73	10	30						19281	N11 W03	168	(AP)	4	B	30	1	HSX	
73	10	31						19281	N11 W16	166	(AP)	4	R	50	1	HSX	
73	11	1	12589	N13 W27	166	1000	1.5	19281	N11 W30	167	(AP)	4	B	30	1	HSX	
73	11	2	12589	N13 W40	165	1000	1.5	19281	N11 W42	166	(AP)	4					
73	11	3	12589	N13 W53	166	800	1.5	19281	N12 W55	167	(AP)	3	R	20	1	HSX	
73	11	4	12589	N12 W69	168	600	1.5										
73	11	5	12589	N12 W83	169	400	1.0		N12 W73				H	20	1	HRX	

MCMATH REGION 12592 CMP DATE 31.3 RETURN OF REGION 12545 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	25	12592	S13 E80	153	900	1.5										
73	10	26	12592	S13 E65	154	1200	2.0										
73	10	27	12592	S12 E50	156	1200	2.0										
73	11	1	12592	S12 W15	154	1100	3.0	19288	S11 W18	155	(BF)	3					
73	11	2	12592	S12 W29	154	1400	3.0	19288	S10 W30	154	(BP)	3					
73	11	3	12592	S12 W41	154	1800	3.0	19288	S10 W45	157	(BP)	2	R	0	4	BXO	
73	11	4	12592	S13 W55	154	1400	2.0										
73	11	5	12592	S13 W69	155	1000	2.0		S13 W79				H	10	1	AXX	
73	11	6	12592	S13 W80	154	400	1.0										

MCMATH REGION 12590 CMP DATE 31.6 RETURN OF REGION 12543* ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA									9.1 CM
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS	INT FLUX
73	10	24	12590	N17 E90	155	500	1.5										
73	10	25	12590	N17 E80	153	1300	3.0	19283	N16 E72	156	(AP)	3	B	70	3	HSX	
73	10	26	12590	N17 E67	152	1300	3.0	19283	N16 E59	155	(AP)	4	B	80	2	HSX	
73	10	27	12590	N17 E54	152	1300	3.0	19283	N16 E50	155	(AP)	4	B	70	3	HSX	
73	10	28						19283	N16 E37	155	AP		B	70	8	HRX	
73	10	29						19283	N16 E24	155	(AP)	3	B	60	8	HAX	
73	10							19285	N21 E29	150	A		B	0	1	AXX	
73	10	30						19283	N15 E10	155	(AP)	3	B	0	2	AXX	
73	10							19285	N20 E12	153	BF)	2	B	0	2	AXX	
73	11	1	12590	N18 W12	151	1400	3.5										
73	11	2	12590	N19 W26	151	1400	3.0										
73	11	3	12590	N18 W38	151	1400	3.0										
73	11	4	12590	N18 W52	151	1200	2.0										
73	11	5	12590	N18 W65	151	1200	2.0										
73	11	6	12590	N19 W78	152	1200	1.5										
73	11	7	12590	N20 W87	147	600	1.0										

Note: Region 12577 may also contain some weak remnants of old region 12532 of the previous rotation.
No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on October 28, 29, 30 and 31, 1973.
No sunspot observations were made at Mt. Wilson Observatory on October 8 and 23, 1973.

DAILY CALCIUM PLAGE INDEX

OCTOBER 1973

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
73	10	1	29.3	73	10	11	1.4	73	10	21	18.4
73	10	2	28.3	73	10	12	1.7	73	10	22	11.2
73	10	3	25.9	73	10	13	2.2	73	10	23	12.8
73	10	4	22.4	73	10	14	4.4	73	10	24	13.3
73	10	5	20.7	73	10	15	5.2	73	10	25	19.1
73	10	6	13.5	73	10	16	5.3	73	10	26	20.5
73	10	7	10.1	73	10	17	4.6	73	10	27	19.4
73	10	8	6.0	73	10	18	5.1	73	10	28	*
73	10	9	3.5	73	10	19	6.3	73	10	29	*
73	10	10	1.5	73	10	20	7.8	73	10	30	*
								73	10	31	*

* NO OBSERVATIONS

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 9 – EXPLORER 37

OCTOBER 1973

NAVAL RESEARCH LABORATORY 1 - 8A HOURLY AVERAGES (10^{-3} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.23	0.26	0.24	0.26	0.46	0.36	0.30	0.31	0.65	0.22	0.29	0.31	0.32	0.27	0.35	0.31	0.32	0.25	0.26	0.29	0.30	0.50	0 24	0.28
2	0.25	0.25	0.29	0.52	0.39	0.24	0.33	0.29	0.27	0.29	0.26	0.23	1.46	0.33	0.56	0.40	0.27	0.27	0.23	0.27	0.23	0.65	0 60	0.34
3	0.76	0.83	0.43	0.34	0.69	0.43	0.47	0.62	0.51	0.46	0.30	0.27	0.24	0.34	0.43	0.26	0.31	0.43	0.23	0.23	0.24	0.29	0 25	0.23
4	0.22	0.22	0.24	0.25	0.24	0.38	0.22	0.26	0.56	0.41	0.52	1.57	1.17	0.33	0.24	0.54	0.30	0.32	0.24	0.23	0.22	0.19	0 66	0.84
5	0.87	0.22	0.47	1.06	1.06	0.62	0.25	0.21	0.20	0.25	0.22	0.26	0.25	0.35	0.37	0.23	0.29	0.26	0.22	0.74	0.37	0.32	0 26	0.29
6	0.15	2.58	1.17	3.24	2.16	0.31	0.19	0.12	0.15	0.19	0.48	0.92	0.50	0.22	0.14	0.14	0.16	0.14	0.18	0.15	0.17	0.14	0 16	0.17
7	0.13	0.10	0.13	0.17	0.13	0.16	0.12	0.13	0.17	0.13	0.11	0.13	0.12	0.14	0.13	0.13	0.15	0.10	0.13	0.11	0.37	0.16	0 14	0.23
8	0.17	0.12	0.82	0.16	0.13	0.16	0.11	0.14	0.11	0.14	0.11	0.12	0.30	0.12	0.19	0.14	0.11	0.20	0.18	0.14	0.16	0.31	0 17	0.13
9	0.14	0.21	0.14	0.18	0.16	0.13	0.14	0.18	0.13	0.11	0.16	0.18	0.15	0.13	0.15	0.12	0.12	0.11	0.11	0.15	0.15	0.14	0 13	0.15
10	0.16	0.10	0.13	0.11	0.14	0.15	0.11	0.13	0.18	0.12	0.21	0.16	0.11	0.22	0.12	0.13	0.23	0.15	0.20	0.18	0.13	0.41	1 83	0.15
11	0.12	0.14	1.66	0.24	0.15	0.21	0.15	0.13	0.11	0.13	0.16	0.10	0.11	0.11	0.12	0.13	0.12	0.13	0.11	0.11	0.13	0.16	0 12	0.11
12	0.14	0.13	0.13	0.14	0.12	0.13	0.14	0.10	0.14	0.12	0.11	0.10	0.12	0.13	0.10	0.10	0.13	0.11	0.09	0.11	0.13	0.11	0 10	0.13
13	0.12	0.10	0.10	0.20	0.13	0.11	0.11	0.11	0.48	0.12	0.12	0.14	0.13	0.10	0.11	0.11	0.10	0.12	0.10	0.18	0.11	0.18	0 11	0.11
14	0.15	0.10	0.18	0.18	0.11	0.09	0.12	0.12	0.10	0.11	0.11	0.10	0.09	0.12	0.11	0.26	0.10	0.10	0.16	0.24	0.13	0.14	0 11	0.17
15	0.10	0.11	0.14	0.11	0.09	0.10	0.11	0.11	0.09	0.11	0.12	0.10	0.11	0.10	0.11	0.12	0.10	0.10	0.13	0.11	0.19	0.14	0 11	0.12
16	0.10	0.13	0.10	0.12	0.12	0.11	0.12	0.09	0.10	0.12	0.10	0.11	0.12	0.12	0.11	0.09	0.10	0.13	0.10	0.13	0.19	0.11	0 29	0.11
17	0.11	0.10	0.09	0.11	0.12	0.14	0.13	0.13	0.13	0.14	0.29	0.17	0.14	0.13	0.11	0.12	0.13	0.11	0.14	0.13	0.13	0.13	0 13	0.13
18	0.11	0.11	0.12	0.11	0.09	0.13	0.09	0.13	0.10	0.12	0.11	0.09	0.13	0.11	0.13	0.12	0.15	0.11	0.14	0.10	0.16	0.11	0 10	0.10
19	0.11	0.15	0.09	0.10	0.10	0.11	0.12	0.10	0.10	0.13	0.14	0.16	0.13	0.12	0.10	0.10	0.12	0.14	0.10	0.13	0.16	0.10	0 17	0.10
20	0.10	0.12	0.12	0.13	0.11	0.15	0.10	0.14	0.11	0.13	0.10	0.11	0.11	0.10	0.11	0.16	0.12	0.15	0.13	0.17	0.19	0.23	0 26	0.19
21	0.17	0.15	0.15	0.13	0.12	0.13	0.12	0.12	0.11	0.13	0.12	0.14	0.13	0.13	0.16	0.14	0.15	0.15	0.17	0.16	0.14	0.17	0 12	0.16
22	0.18	0.14	0.17	0.21	0.28	0.20	0.21	0.17	0.17	0.21	0.16	1.01	0.16	0.17	0.15	0.23	0.22	0.26	0.22	0.18	0.23	0.18	0 19	0.15
23	0.16	0.14	0.15	0.15	0.15	0.15	0.26	0.15	0.17	0.17	0.15	0.13	0.44	0.26	0.23	0.29	0.16	0.17	0.13	0.17	0.22	0.57	0 44	0.21
24	0.20	0.41	0.22	0.18	0.18	0.28	0.17	0.15	0.18	0.19	0.23	0.21	0.20	0.23	0.26	0.40	0.22	0.18	0.28	0.20	0.16	0.16	0 20	0.18
25	0.17	0.24	0.16	0.14	0.15	0.13	0.14	0.15	0.51	0.24	0.20	0.24	0.16	0.18	0.18	0.21	0.23	0.24	0.20	0.16	0.24	0.17	0 18	0.18
26	0.15	0.17	0.28	0.18	0.14	0.18	0.16	0.17	0.13	0.16	0.15	0.21	0.16	0.19	0.20	0.19	0.16	0.24	0.20	0.25	0.22	0.30	0 30	0.17
27	0.14	0.28	1.02	0.57	0.25	0.63	0.39	0.47	0.55	0.30	0.23	0.25	0.21	0.16	0.30	2.04	22.0	3.49	1.82	1.10	0.72	0.64	0 54	0.42
28	0.34	0.38	0.37	0.30	0.26	0.26	0.32	0.27	1.41	1.36	0.36	0.18	0.21	0.17	0.23	0.20	0.22	0.20	0.24	0.22	0.24	0.29	0 25	0.27
29	0.49	1.27	0.56	0.48	0.52	0.38	0.29	0.30	0.21	0.28	0.23	0.28	0.20	0.18	0.15	0.27	0.22	0.21	0.19	0.20	0.18	0.15	0 21	0.18
30	0.20	0.27	0.50	0.37	0.37	0.49	0.29	0.24	0.22	0.15	0.17	0.19	0.15	0.19	1.12	3.17	2.45	1.50	0.68	0.51	0.24	0.24	0 19	0.23
31	0.17	0.13	0.18	0.56	0.17	0.21	0.18	0.21	0.19	0.19	0.17	0.16	0.17	0.19	0.27	0.20	0.18	0.16	0.27	0.38	2.52	0.63	0 33	0.39

SOLAR X-RAYS MEASURED BY SATELLITE
SOLRAD 9 - EXPLORER 37

OCTOBER 1973

NAVAL RESEARCH LABORATORY 8 - 20A HOURLY AVERAGES (10^{-2} ergs/cm^2/sec)

DAY	HOUR																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0.49	0.53	0.48	0.46	0.62	0.59	0.53	0.58	0.69	0.49	0.53	0.56	0.61	0.48	0.48	0.54	0.53	0.49	0.48	0.50	0.48	0.63	0 50	0.51
2	0.52	0.49	0.53	0.63	0.55	0.47	0.56	0.52	0.50	0.53	0.49	0.47	1.26	0.64	0.78	0.65	0.53	0.51	0.48	0.52	0.52	0.66	0 66	0.55
3	0.86	0.92	0.73	0.64	0.86	0.69	0.73	0.84	0.74	0.68	0.57	0.49	0.48	0.59	0.64	0.53	0.54	0.63	0.44	0.42	0.41	0.49	0 49	0.43
4	0.42	0.42	0.41	0.39	0.39	0.50	0.43	0.47	0.79	0.64	0.66	1.27	1.25	0.54	0.44	0.59	0.46	0.48	0.42	0.37	0.34	0.31	0 49	0.66
5	0.69	0.35	0.52	0.92	1.05	0.71	0.43	0.32	0.30	0.32	0.30	0.35	0.30	0.38	0.46	0.32	0.34	0.34	0.31	0.63	0.50	0.45	0 37	0.34
6	0.31	1.51	1.10	2.03	1.71	0.58	0.27	0.25	0.24	0.25	0.45	0.94	0.62	0.39	0.27	0.23	0.23	0.22	0.21	0.19	0.18	0.18	0 20	0.19
7	0.19	0.19	0.18	0.18	0.19	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.14	0.26	0.20	0 18	0.22
8	0.16	0.15	0.59	0.20	0.15	0.14	0.14	0.14	0.13	0.14	0.14	0.16	0.24	0.15	0.15	0.15	0.15	0.22	0.27	0.23	0.25	0.38	0 26	0.23
9	0.24	0.31	0.22	0.27	0.19	0.20	0.19	0.19	0.16	0.17	0.18	0.19	0.16	0.15	0.13	0.12	0.13	0.12	0.12	0.13	0.16	0.16	0 13	0.19
10	0.16	0.13	0.11	0.15	0.14	0.12	0.11	0.10	0.10	0.12	0.20	0.12	0.12	0.23	0.14	0.13	0.16	0.17	0.20	0.21	0.17	0.35	1 09	0.19
11	0.13	0.14	1.29	0.35	0.22	0.25	0.18	0.15	0.13	0.15	0.17	0.14	0.12	0.11	0.11	0.12	0.12	0.12	0.11	0.10	0.09	0.09	0 09	0.09
12	0.10	0.09	0.10	0.13	0.08	0.08	0.08	0.07	0.06	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0 05	0.06
13	0.06	0.07	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0 06	0.05
14	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.10	0.05	0.05	0.05	0.12	0.06	0.06	0 06	0.06
15	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.07	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.09	0.08	0 09	0.12
16	0.11	0.10	0.08	0.08	0.09	0.12	0.10	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.08	0.09	0.08	0.08	0.10	0.10	0.11	0.11	0 19	0.10
17	0.10	0.12	0.11	0.13	0.14	0.18	0.16	0.19	0.19	0.19	0.32	0.24	0.18	0.15	0.15	0.16	0.17	0.16	0.13	0.13	0.13	0.13	0 13	0.13
18	0.12	0.13	0.12	0.12	0.11	0.11	0.10	0.10	0.09	0.10	0.10	0.10	0.10	0.11	0.11	0.10	0.10	0.11	0.11	0.09	0.10	0.11	0 10	0.10
19	0.10	0.09	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.11	0.10	0.10	0.10	0 10	0.09
20	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.08	0.09	0.08	0.09	0.08	0.08	0.09	0.15	0.19	0.22	0.26	0 30	0.27
21	0.25	0.23	0.22	0.21	0.18	0.16	0.16	0.16	0.15	0.15	0.15	0.17	0.19	0.19	0.23	0.23	0.23	0.24	0.25	0.24	0.22	0.22	0 24	0.26
22	0.28	0.25	0.28	0.33	0.38	0.35	0.38	0.32	0.31	0.31	0.28	0.74	0.31	0.28	0.30	0.34	0.36	0.33	0.32	0.29	0.31	0.37	0 33	0.28
23	0.29	0.27	0.27	0.29	0.27	0.30	0.33	0.31	0.28	0.29	0.29	0.27	0.48	0.42	0.39	0.42	0.29	0.30	0.29	0.29	0.32	0.59	0 58	0.37
24	0.38	0.58	0.43	0.39	0.41	0.47	0.42	0.37	0.37	0.42	0.46	0.43	0.42	0.42	0.43	0.57	0.42	0.34	0.35	0.34	0.33	0.32	0 36	0.34
25	0.32	0.37	0.34	0.31	0.31	0.29	0.30	0.30	0.52	0.45	0.36	0.41	0.32	0.35	0.33	0.35	0.38	0.32	0.34	0.32	0.34	0.34	0 31	0.31
26	0.32	0.33	0.43	0.32	0.29	0.32	0.33	0.34	0.30	0.29	0.30	0.34	0.33	0.36	0.35	0.31	0.34	0.37	0.38	0.34	0.40	0.49	0 49	0.39
27	0.40	0.48	1.03	0.81	0.53	0.69	0.61	0.60	0.71	0.53	0.45	0.46	0.40	0.37	0.46	1.27	8.78	2.18	1.67	1.15	0.85	0.81	0 74	0.66
28	0.60	0.62	0.59	0.52	0.53	0.51	0.55	0.49	0.80	0.91	0.50	0.35	0.37	0.36	0.41	0.41	0.37	0.41	0.42	0.42	0.43	0.46	0 46	0.46
29	0.57	0.93	0.69	0.64	0.65	0.56	0.52	0.49	0.46	0.47	0.44	0.44	0.42	0.39	0.39	0.39	0.36	0.34	0.36	0.34	0.34	0.35	0 34	0.35
30	0.32	0.42	0.47	0.51	0.49	0.65	0.51	0.43	0.36	0.33	0.29	0.33	0.32	0.30	0.56	1.93	1.69	1.31	0.79	0.65	0.44	0.40	0 34	0.36
31	0.31	0.28	0.28	0.55	0.35	0.35	0.32	0.30	0.34	0.28	0.29	0.27	0.28	0.30	0.32	0.31	0.30	0.29	0.36	0.41	1.17	0.66	0 48	0.49

SOLAR X-RAYS BY SATELLITE
EXPLORER 37
OCTOBER 1973

NAVAL RESEARCH LABORATORY

OUTSTANDING EVENTS

DAY	START TIME	0.5-3A FLUX XE-5	PEAK TIME	1-8A FLUX XE-4	PEAK TIME	8-20A FLUX XE-3	PEAK TIME	END TIME	COMMENTS
4	1150E	2.20D	1154E	38.00	1151	24.00	1151	1159	
6	0145	11.00	0148	50.00	0148	24.00	0148	0154	
6	0343	8.90	0354	55.00	0358	29.00	0356	0407D	
10	2204	10.00D	2205D	39.00	2207	18.00	2210	2211	
11	0215	8.90D	0216D	49.00	0215	23.00	0220	0222	
27	1555	87.00	1616	310.00	1615	110.00	1614	1721D	
30	1447	8.90	1449	44.00	1453	21.00	1536	1556	
31	2004	11.00	2005	39.00	2010	17.00	2010	2016D	

Note: Data from SOLRAD 10 are not available after 2200 UT on June 11 due to a malfunction of the data storage system. Hourly flux values and X-ray flares will be reported from SOLRAD 9 until SOLRAD 10 resumes normal operation.

SUDDEN IONOSPHERIC DISTURBANCES

OCTOBER 1973

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
01	1800U	1822	1806U	1-	1							1	1803	12540
02	0259	0322	0304	1-	1				1				0259	12537
02	1028	1050	1047U	1-	1			1					*	
02	1142	1204	1145	1-	1			1					*	
02	1218	1249	1225U	1-	1			1					*	
04	1122	1230	1135	1-	1				1		1		1115	12540
04	2350	0038	2356	1-	1				1				2352E	12542
06	0137	0234	0152	1-	3				2				0136	12542
06	0249	0452	0357	1-	1				1				0254E	12542
08	0230	0258	0240	1-	1				1				0231E	12542
08	1525	1558	1538	1-	1			1					1528	12545
09	0553	0603	0556	1-	1			1					0552	12545
09	0844	0926	0852	1-	1			1					0843	12545
10	1122	1245	1132	1-	1			1					1121	12545
10	1848	1850	1849	1-	1							1	1845	12545
26	2239	2241	2240	1-	1							1	2240	12584
27	1550	1745	1623	1+	5	5			2	1	8		1547	12590
28	0852	0930	0858	2-	3	2	1	2	2		2		0851E	12854
28	1032E	1054	1033	1-	1			1					1029	12854
28	1825	1832	1827	1-	1							1	1827E	12589

STATIONS REPORTING FOR OCTOBER 1973

AAVSO (A1, A17, A26, A32) (SEA) (A1, A19, A21, A30, A31, A33, A36, A37, A38) (SES) (A31, A38) (SWF)
BOULDER (BO) (SCNA, SEA)
DARMSTADT (DA) (SWF)
ENKOPING (SW) (SWF)
HAWAII (HA) (SFD)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
KASUAGI (KA) (SPA)
KUHLUNGSBORN (KU) (SEA, SPA)
MANILA (MA) (SEA, SCNA)
MCMATH (MC) (SWF, SCNA)
NEUSTRELITZ (NU) (SWF, SCNA)
PANSKA VES (PU) (SWF, SES)
POITIERS (PO) (SEA)
PRESTON (LO) (SEA)
SACRAMENTO PEAK (SP) (SFD)
SAO PAULO (UM) (SPA, SES)
SOFIA (SF) (SES)
TABLE MOUNTAIN (TM) (SWF, SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
WHITE SANDS (WS) (SWF)

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01-02	0000-2400 A33
01	0000-0110 KA
02	0120-0230 MA, 0614-1400 WS
03	0800-1411 WS
04	1200-1649 BO, 1705-2109 UM (18 kHz)
05	1242-1254 TM
08	0000-0600 BO
09-11	0000-1830 BO
09	1005-1340 UM (16 kHz), 1110-1240 MC, 1400-1500 MC, 1638-1803 TM, 2055-2400 WS
10	0000-1425 WS, 0747-0806 UM (16 kHz), 0810-0911 UM (16 kHz), 2312-2400 WS
11	0000-1415 WS, 0206-1340 TM, 0745-0806 UM (16 kHz), 1807-1825 WS, 1956-2400 WS
12	0000-1420 WS, 2032-2050 WS
13	2252-2258 TM
14	0211-1243 TM, 1313-1700 TM, 1740-1757 TM
15	2254-2334 TM
16-19	1649-1903 WS
16	1005-1311 UM (16 kHz)
17	0100-1215 MC, 2200-2245 TM
18	0740-0854 UM (16 kHz)
19	0744-0854 UM (16 kHz), 1900-2000 BO
20-31	0000-2400 A37
21	0745-0910 UM (16 kHz)
22	0740-0837 UM (16 kHz)
23-31	0000-2400 A21
23	0739-0827 UM (16 kHz), 1004-1339 UM (16 kHz)
27	0650-0740 MA
28-31	0000-2400 A32
31	0612-2108 BO

SID's BY McMATH REGION

OCTOBER 1973

DAY	37	40	42	45	54	84	89	90	X-RAY	UN-KNOWN	NO FP
01		1									
02	1										3
03											
04		1	1								
05											
06			2								
07											
08			1	1							
09				2							
10				2							
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26						1					
27								1			
28					2		1				
29											
30											
31											

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1973

OCT. 1973	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
01	0000	0015	HARV													
	0000	0722	CULG							0008.5		1				IIIB,U
			CULG				0543	0543.5	1							IIIG
	0603	1359	WEIS							0630.4	0630.5	1				IIIB
	1407	1627	WEIS							0631.8	0631.9	1				IIIB
	1044	2221	SGMR													
			WEIS							1106.6	1107.4	1				IIIG
	1317	2400	HARV				1329		1							I
	1445	2400	BOUL													
	2022	2110	CULG							2030	2031					IIIG,W
	2145	2207	CULG													
	2250	2314	CULG													
02	0000	0100	BOUL													
	0000	0014	HARV													
	0005	0155	CULG							0019	0019.5	1				IIIG,U
			CULG							0143		1				IIIB
			CULG							0144.5		1				IIIB
	0254	0434	CULG				0259.5	0300.5	1	0258.5	0301.5	1				IIIGG,RS
			CULG							0325.5	0416					IS,W
			CULG				0354		1	0354		1				IIIG,U
			CULG							0413.5		1				IIIB
	0449	0703	CULG													
	0603	1628	WEIS													
	1045	2219	SGMR													
	1300	2400	BOUL													
	2022	2249	CULG							2053		1				IIIB
			CULG							2128		1				IIIB
	1316	2400	HARV				2128	2129	3							IIIGG
			HARV				2238	2243	3							IIIGG
	2349	2400	CULG													
03	0000	0045	CULG													
	0000	0100	BOUL													
	0000	0013	HARV													
	0154	0247	CULG													
	0357	0452	CULG													
	0600	0644	CULG													
	0603	1324	WEIS													
	1317	2400	HARV							1317	1504	1				I
	1328	1628	WEIS													
			HARV							1504	2151	1				IN
	2021	2212	CULG							2033.5	2036.5	2				IIH
			BOUL							2033.9	2047.4	2				IIH
			HARV							2034	2044	2	2038	2044	2	II
	1300	2400	BOUL										2034.0	2044.2	2	IIF
	1047	2217	SGMR										2036.0	2041.2	1	II
			BOUL										2052.1	2053.2	1	III
	2301	2358	CULG													
04	0000	0100	BOUL													
	0000	0012	HARV													
	0103	0159	CULG													
	0308	0332	CULG													
	0710	0721	CULG													
	0604	1629	WEIS							1129.8	1139.0	1				II
	1048	2215	SGMR										1129.9	1132.2	1	II
			SGMR										1134.3	1142.1	1	V
	1317	2400	HARV							1514	1516	2				IIIGG
			WEIS							1516.1	1514.5	2				IIIG,U
			HARV				1821		1	1821		2				IIIG
	1300	2400	BOUL										1932.8	1933.2	1	III
	2022	2156	CULG													
	2251	2310	CULG													
	2334	2400	CULG													
05	0000	0011	HARV													
	0059	0130	CULG													
	0230	0301	CULG							0257	0258.5	1				IIIG,U
	0400	0431	CULG													
	0535	0557	CULG													
	0604	1212	WEIS							0614.5	0615.0	1				IIIG
			WEIS							0619.2	0620.5	2				IIIGG
	0711	0719	CULG													
	1317	2400	HARV				1347	1348	1	1347	1348	3	1347	1348	3	IIIG
	1300	2400	BOUL							1347.3	1348.2	2	1347.3	1348.2	2	IIIG
	1343	1604	WEIS							1347.4	1347.8	3				IIIG
	1049	2214	SGMR										1347.5	1348.1	2	III
			BOUL							1349.9	1350.4	1	1349.9	1350.4	1	IIIG
			HARV							1454	1540	1				IN
			BOUL										1456.4	1456.7	1	III
			BOUL										2000.6	2007.4	1	II
	2021	2400	CULG							2104		1				IIIB
			CULG							2125	2126					IIIG,W
			CULG							2138	2139					IIIG,W
			CULG							2207.5	2342					IN
			CULG							2241.5	2249					IIIG,W
			BOUL							2244.2	2244.6	1	2244.2	2244.6	1	III
			BOUL										2248.4	2249.0	1	III
			BOUL										2307.4	2307.5	1	III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1973

OCT. 1973	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
05			CULG							2307.5	2309					IIIG,W
06	0000	0100	BOUL													
	0000	0010	HARV													
	0000	0720	CULG							0348	0351	1				IIIG
	1050	2212	SGMR													
	0617	1606	WEIS							1051.0	1050.5	1				II
	1300	2400	BOUL													
	1317	2400	HARV													
	2020	2400	CULG													
07	0000	0030	BOUL													
	0000	0010	HARV													
	0000	0720	CULG				0228	0229	1	0228	0229	1				IIIG
			CULG							0327	0328	2				IIIG,U
			CULG				0331.5	0332	1	0331.5	0333.5	1				IIIG
			CULG				0335		1	0335		1				IIIB,U
	0617	1446	WEIS													
	1051	2210	SGMR													
	1520	1606	WEIS													
	2020	2400	CULG							2207.5	2210					IIIG,W
			CULG							2212.5	2215	1				IIIG,U
			CULG							2322	2325	1				IIIGG,U
	1300	2400	BOUL							2322.3	2322.5	1	2322.3	2322.5	1	III
	1316	2400	HARV							2326	2327	2				IIIG
			CULG				2326.5	2327.5	1	2326.5	2327.5	1				IIIG
			CULG							2331.5	2343					II, W
			BOUL							2332.0	2332.2	1				III
			BOUL										2336.6	2337.1	1	IIIG
			BOUL										2341.9	2342.5	1	III
08	0000	0030	BOUL													
	0000	0009	HARV													
	0000	0720	CULG							0346.5	0347	1				IIIG
			CULG							0435	0437.5	1				IIIG,V,U
	0618	0844	WEIS													
	1052	2209	SGMR													
	0854	1606	WEIS				1130.3	1130.4	2							IIIB
			WEIS				1155.0	1155.2	1							IIIG
	1300	2400	BOUL													
	1317	2400	HARV													
	2020	2400	CULG							2256	2256.5	1				IIIG
09	0000	0030	BOUL													
	0000	0009	HARV													
	0000	0720	CULG							0039						IIIB,W
			CULG							0054						IIIB,W
			CULG							0101	0104	1				IIIG,V
	0619	1519	WEIS													
	1053	2207	SGMR													
	1317	2400	HARV													
	1300	2400	BOUL										1514.1	1514.4	1	III
			BOUL										1515.5	1516.2	1	III
			BOUL							1517.1	1518.6	2	1517.1	1518.6	2	IIIG
	1532	1607	WEIS													
	2020	2400	CULG													
10	0000	0720	CULG													
	0000	0830	BOUL													
	0000	0806	HARV													
	0619	1453	WEIS													
	1054	2205	SGMR													
	1331	2400	HARV													
	1520	1537	WEIS													
	1300	2400	BOUL										1726.7	1727.0	1	IIIG
	2020	2400	CULG							2301						IIIB,W
11	0000	0830	BOUL													
	0000	0806	HARV													
	0000	0719	CULG							0340.5	0342	1				IIIG,U
			CULG							0345	0346	1				IIIG,U
	0620	1433	WEIS													
	1300	2400	BOUL													
	1331	2400	HARV													
	1056	2204	SGMR										1331.0	1331.2	1	III
	1518	1538	WEIS													
	1544	1610	WEIS													
	2019	2400	CULG													
12	0000	0830	BOUL													
	0000	0804	HARV													
	0000	0719	CULG							0043.5	0045	1				IIIG,V
	0620	1606	WEIS													
	1057	2202	SGMR													
	1300	2400	BOUL													
	1330	2400	HARV													
	2019	2400	CULG													
13	0000	0403	CULG													
	0000	0002	HARV													

SOLAR RADIO EMISSION
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OCT. 1973	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
13	0447	0719	CULG													
	0622	1601	WEIS													
	1058	2200	SGMR													
	1331	2400	HARV													
	2051	2400	CULG													
14	0000	0718	CULG													
	1059	2159	SGMR													
	0621	1602	WEIS							1107.4	1108.8	2				IIIGG
	1331	2400	HARV													
			WEIS							1505.4	1505.5	1				IIIG
	2018	2400	CULG													
15	0000	0718	CULG							0421		1				IIIB
	0622	1603	WEIS													
	1100	2157	SGMR													
	1652	1709	WEIS													
	2018	2034	CULG													
	2041	2400	CULG							2225	2400					IS,W
	1534	2400	BOUL										2303.4	2303.9	1	III
	1331	2356	HARV				2304	2308	2							IIIGG
16	0000	0030	BOUL													
	0000	0656	CULG							0000	0420					IS,W
			CULG							0553	0553.5	2				IIIG
	0623	1604	WEIS													
	1102	2155	SGMR													
	1331	2356	HARV													
	1300	2400	BOUL										1701.2	1703.4	1	IIIG
	2016	2400	CULG							2219	2220	2	2219	2219.5	1	IIIG,V
			BOUL							2224.4	2225.0	2	2224.4	2225.0	2	III
17	0000	0030	BOUL													
	0000	0717	CULG							0537	0538					IIIG,W
	0623	1605	WEIS													
	1103	2154	SGMR													
	1300	2400	BOUL													
	1331	2354	HARV													
	2018	2400	CULG													
18	0000	0717	CULG													
	0000	0030	BOUL													
	0703	1605	WEIS													
	1104	2152	SGMR													
	1300	2400	BOUL													
	1331	2352	HARV													
	2017	2400	CULG													
19	0000	0717	CULG													
	0000	0030	BOUL													
	0730	1547	WEIS													
	1105	2151	SGMR													
	1331	2350	HARV													
	1300	2400	BOUL							1804.0	1804.3	1	1804.0	1804.3	1	III
	2017	2400	CULG													
20	0000	0033	CULG													
	0000	0030	BOUL													
	0602	0717	CULG													
	0631	0755	WEIS													
	0804	1547	WEIS													
	1106	2149	SGMR													
	1331	2349	HARV													
	2018	2400	CULG													
	1300	2400	BOUL										2244.1	2244.4	1	III
			CULG							2306	2306.5					IIIG,W
			BOUL										2306.8	2306.3	1	III
21	0000	0030	BOUL													
	0000	0717	CULG													
	0632	1547	WEIS													
	1108	2147	SGMR													
	1300	2400	BOUL													
	1331	2348	HARV													
	2028	2400	CULG							2213.5						IIIB,W
22	0000	0101	CULG													
	0107	0717	CULG							0417	0421	1				IIIG
	0633	0941	WEIS													
	0948	1234	WEIS													
	1109	2146	SGMR													
	1525	1647	WEIS													
	1330	2347	HARV							1715	1837	1	1715	1837	1	IIIN
	1500	2400	BOUL										1726.6	1728.0	1	IIIG
			HARV							1808	1815	1	1808	1815	1	IIIGG
			BOUL										1809.0	1814.9	1	IIIG
			BOUL										1820.5	1820.7	1	III
			BOUL										1837.2	1837.4	1	III
	2017	2130	CULG							2034		1				IIIB,U
			CULG							2044		1				IIIB,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1973

OCT. 1973	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
22			CULG							2048		1				IIIB,U
			CULG							2108	2111	1				IIIG,U
			CULG							2118		1				IIIB,U
	2255	2400	CULG							2355		1				IIIG,U
23	0000	0717	CULG							0031	0034	2				IIIG,U
			CULG							0129						IIIB
			CULG							0214	0215	1				IIIG,W
			CULG							0233		1				IIIB
			CULG							0247	0255	1				IIIG
			CULG							0248	0717					IIIN,W
			CULG							0402.5	0403	2				IIIG,U
			CULG							0412.5	0414	1				IIIG
	0634	1510	WEIS													
	1331	2346	HARV				1406	1530	1							IN
			HARV							1459	1502	2				IIIG
			HARV							1505	1506	2				IIIG
	0000	0030	BOUL							1505.6	1507.0	2	1505.6	1507.0	2	III
	1110	2144	SGHR										1506.2	1506.5	1	III
			HARV							1509	1512	2				IIIGG
	1300	2400	BOUL							1512.0	1512.5	1	1512.0	1512.5	1	III
			HARV							1645		1				IIIG,U
			BOUL										1732.8	1733.0	1	III
			BOUL										1808.7	1808.9	1	III
			BOUL										1906.3	1906.5	1	III
			HARV				1934	1935	3	1934	1935	3				IIIG
			BOUL							1934.5	1934.9	1	1934.5	1934.9	1	III
			BOUL										1957.8	1958.0	1	III
	2016	2400	CULG							2016	2400	1				IIIN
			BOUL										2032.8	2033.0	1	III
			CULG				2038	2400	1							IS
			CULG							2042.5	2046	2				IIIG,U
			CULG				2125.5	2126.5	1	2125.5	2127.5	2				IIIG,V,U
			HARV							2126	2127	2				IIIG
			HARV				2137	2139	2	2137	2138	2				IIIGG
			CULG				2137.5	2138.5	1	2137.5	2139.5	1				IIIG,V
			HARV							2343	2344	1				U
			CULG							2343.5	2344	2				IIIG,U
			CULG							2353	2353.5	2				IIIB,U
24			CULG							0000	0625					IIIN,W
	0000	0716	CULG				0000	0148	1							IS
	0000	0030	BOUL													
			CULG				0036	0038.5	1	0036	0040	2				IIIGG,V,U
			CULG							0055	0120	1				IS
	0641	1104	WEIS													
	1109	1537	WEIS													
	1111	2143	SGHR													
	1331	2345	HARV													
	1330	1632	BOUL										1555.5	1555.9	1	III
25	0000	0030	BOUL													
	0425	0716	CULG							0439	0658					IIIN,W
	0643	1546	WEIS							1124.2	1126.8	2				III
	1113	2142	SGHR										1124.4	1127.1	2	V
	1330	2400	BOUL										1457.8	1458.2	1	III
	1331	2344	HARV				1552	1553	3	1552	1554	3	1552	1554	3	IIIGG
			BOUL							1552.3	1554.6	2	1552.3	1554.6	2	IIIG
			SGHR										1552.4	1553.7	2	III
			HARV				1915	1916	1	1915	1917	1				IIIG
	2028	2400	CULG							2028	2339					IIIN,W
			CULG				2329	2333	2	2329	2334	2				IIIGG,V,U
			BOUL							2330.0	2334.2	2	2330.0	2334.2	2	IIIG
			HARV				2331	2333	2	2329	2334	3				IIIGG,U
26	0000	0030	BOUL													
	0000	0631	CULG							0051.5	0638					IIIN,W
			CULG							0152.5		1				IIIB
			CULG							0524.5	0530.5	2				IIIG,U
			CULG				0533	0534	1	0533	0534	2				IIIG,U
	0646	1323	WEIS							0725.4	0726.0	1				IIIG
			WEIS							0727.2	0727.8	1				IIIG
			WEIS							0730.0	0732.3	1				IIIGG
			WEIS							0744.0	0744.3	1				IIIG
			WEIS							0838.5	0839.0	2				IIIG
			WEIS							1122.8	1123.0	1				IIIB
			WEIS							1229.7	1229.8	1				IIIG
			WEIS							1231.5	1232.4	1				IIIG
	1114	2140	SGHR										1232.9	1234.2	1	III
			WEIS							1233.2	1234.0	1				IIIG
	1341	1537	WEIS													
	1331	2343	HARV				1617	1621	1	1614	1625	3	1615	1622	3	IIIGG,V
			SGHR										1617.1	1621.4	2	IIIG
	1330	2400	BOUL							1617.1	1618.7	1	1617.1	1618.7	1	IIIG
			BOUL							1621.0	1621.8	1	1621.8	1621.8	1	IIIG
	2017	2400	CULG							2037	2400	1				IIIN
			BOUL										2045.0	2049.2	1	IIIG
			HARV				2048	2052	2	2048	2057	3	2050	2052	3	IIIGG,V
			CULG				2048.5	2052	1	2045	2053	1	2050	2052	1	IIIGG,V,U
			BOUL							2050.2	2052.9	2	2050.2	2052.9	2	III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1973

OCT. 1973	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
26			SGMR										2050.9	2052.1	2	III
			CULG							2056	2057	2				IIIG
			BOUL										2101.5	2101.7	1	III
			CULG							2155	2400	1				IS
27	0000	0716	CULG							0000	0635					IIIN,W
			CULG							0000	0513	1				IS
			CULG				0142	0505								IN,W
			CULG				0157.5	0158	1	0157.5	0158	2				IIIG
			CULG				0415.5	0416.5	1	0415	0416.5	1				IIIG,U
	0641	1539	WEIS													
	1330	2400	BOUL							1449.0	1449.1	1	1449.0	1449.1	1	III
			BOUL							1517.1	1517.3	1	1517.1	1517.3	1	III
	1330	2342	HARV				1550	1600	1							I
			HARV				1554	1608	3							IV
			HARV				1554	1559	3							IIIGG,RS
			BOUL							1600.0	1602.4	1	1600.0	1602.4	1	IIIG
			HARV							1601	1623	3	1605	1623	3	II
			BOUL							1602.6	1633.6	2	1602.6	1633.6	2	II
			BOUL										1602.7	1613.8	2	II
			BOUL							1605	1713	1				IS
	1115	2139	SGMR										1605.0	1605.8	1	III
			SGMR										1605.8	1621.1	2	II
			HARV				1608	1630	3							IVP
			HARV				1642	1714	3							IVN
			BOUL										1706.2	1707.7	1	III
			HARV				1716	1746	2							IVN
			HARV							1744	2016	1	1744	2016	1	IIIN
			HARV				1835	1838	2							IV
			HARV							1915	2100	1				IN
	2016	2400	CULG							2016	2335	1				IIIN
			SGMR										2018.1	2025.0	1	IIIG
			HARV				2206	2232	1							IN
			CULG				2207	2315	1	2016	2400	1				IS
			HARV							2220	2324	1				I
28	0000	0716	CULG							0000	0136	1				IS
			CULG							0047	0145					IIIN,W
			CULG				0148	0606								IN,W
	0642	1540	WEIS							0817.1	0817.8	1				IIIG
			WEIS							0905.8	0906.0	1				IIIB
			WEIS							0951.6	0952.8	1				IIIGG
			WEIS							1045.5	1045.6	1				IIIB
			WEIS							1046.6	1047.1	1				IIIG
	1331	2341	HARV							1331	1740	1				IN
			WEIS							1428.6	1428.7	1				IIIG
	1330	2400	BOUL							1439.6	2159.0	1	1439.6	2159.0	1	CONT
			HARV							1536	1952	2	1536	1952	2	IIIN
			HARV				1659	1800	1							IN
			HARV							1740	2340	2				I
			HARV				1800	1935	1							I
			HARV							1803	1804	3	1803	1804	3	IIIGG
	1117	2137	SGMR										1803.4	1804.1	2	III
			BOUL							1803.5	1804.3	2	1803.5	1804.3	2	IIIG
			HARV							1834	1836	3	1835	1836	3	IIIG
			SGMR										1835.1	1835.8	2	III
			HARV				1950	2336	1							IN
	2015	2400	CULG				2015	2400	1	2015	2400	2				IS,CONT
			CULG							2015	2400	1				IIIS
			CULG										2029	2332	1	IIIN
			CULG							2105	2106	2	2105.5	2106	1	IIIG
			HARV							2105	2106	2	2105	2106	2	IIIGG
			BOUL							2105.5	2106.1	2	2105.5	2106.1	2	III
			HARV							2210	2213	2	2211	2212	1	IIIGG
			CULG							2210.5	2212.5	2	2210.5	2212	1	IIIGG
			BOUL							2224	2332.6	1	2224	2332.6	1	CONT
			CULG							2302	2303	1				IIIG
			HARV							2303	2304	3				IIIG
			HARV							2310	2311	2				IIIGG
			CULG							2310	2311	2				IIIG
29			CULG							0000	0716	2				IIIS
	0000	0716	CULG				0000	0716	1	0000	0716	2				IS,CONT
			CULG										0015	0526		IIIN,W
			CULG				0445	0446	1	0444.5	0446	2				IIIGG,V,U
	0643	0700	WEIS													
	0710	1541	WEIS							0710.0	0740.0	1				IN
			WEIS							0752.7	0752.8	1				IIIB
			WEIS							0807.5	0807.6	1				IIIB
			WEIS							0833.7	0834.0	1				IIIG
			WEIS							0847.1	0847.5	1				IIIG
			WEIS							1051.4	1052.0	2				IIIG
	1118	2136	SGMR													
			WEIS							1149.6	1149.8	1				IIIG
	1330	2400	BOUL													
	1331	2340	HARV							1331	1344	1				I
			HARV							1344	1931	1				IN
			HARV							1515	1518	2				IIIGG
			WEIS							1515.5	1517.5	1				IIIG
			HARV							1525		2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

OCTOBER 1973

OCT. 1973	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: CENTIMETRIC BAND START UT	CENTIMETRIC BAND END UT	CENTIMETRIC BAND INT.	DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT.	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT.	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT.	SPECTRAL TYPE
29			HARV				1840	1841	1							IIIG
			HARV				1932	1945	1							IN
			CULG							2015	2400	1				IIIN
	2015	2400	CULG							2015	2400	1				IS
			HARV							2121	2217	1				IN
			CULG				2146	2408								IS,W
			CULG				2221	2222								IIIG,W
30			CULG							0000	0455					IIIN,W
	0000	0716	CULG				0000	0716	1	0030	0455	1				IS
			CULG				0102	0104.5	2	0102	0105	2				IIIGG
			CULG				0122	0123	1							FAST DRIFT
			CULG				0221	0222	1							FAST DRIFT
			CULG							0453		1				IIIB,U
			CULG							0455	0716	1				IIIS
			CULG							0455	0716	2				IS,CONT
	0644	1543	WEIS							0647.0	1539.0	1				IN,CONT
			WEIS							1133.4	1134.2	2				IIIGG
			WEIS							1321.8	1322.0	1				IIIG
	1331	2340	HARV							1331	1512	1				I
			HARV				1427	1657	1							IN
	1330	2400	BOUL							1437.0	2035.0	3	1437.0	2035.0	3	IV
			HARV				1443	1448	1							IIIGG
			HARV				1458	1500	1							IIIGG
			HARV							1512	1901	2				IC
	1119	2135	SGMR										1514.0	1930.0	2	CONT
			HARV				1516	1520	1							IIIGG
			HARV										1518	1901	2	IC
			HARV				1522	1531	2							IIIGG
			HARV				1531	1544	2							IVP
			HARV				1551	1557	2							IV
			SGMR										1635.0	1645.0	1	IIIG
			HARV							1901	2333	1				IN
			CULG							2019	2350					IIIN,W
	2019	2400	CULG							2019	2055	1				IS,CONT
			CULG							2055	2400					IS
31	0000	0716	CULG							0000	0716					IS,W
			CULG							0141						IIIB,W
			CULG							0158						IIIB,W
			CULG				0510	0511	1	0510	0511	1				IIIG
	0644	1040	WEIS							0711.0	1508.0	1				IN,W
	1048	1542	WEIS													
	1120	2133	SGMR													
	1330	2400	BOUL													
	1331	2339	HARV							1403	1848	1				IN
			HARV				1419	1440	1							IN
	2020	2400	CULG				2020	2400								IS,W
			CULG							2029.5						IIIB,W
			CULG							2133.5						IIIB,W

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity

Note: Beginning in May the frequency coverage at the Harvard Radio Astronomy Station, Fort Davis, Texas, has been extended from 10-2000 MHz to 10-4000 MHz.

SELECTED SOLAR EVENTS

OCTOBER 1973

Culgoora

UT Date 1973. OCTOBER	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions		Polarization	Intensity (1-3)		
				Central Dist. ($R_\odot$)	Position Angle (Deg.)				
7	0335	0336	80 160	1.0 0.9	320 300	0	1	III B,U	*
8	0346	0347	80 160	1.2 1.0	290 270	0	1	III G	
	0435	0437	160	1.0	270	0	1	III G, V,	U Complex No 80 MHz observations
23	0129	0130	43.25 80 160	1.0	120	0	1	III B	*
24	0036	0038	43.25 80 160	0.9	130	0	1	III GG, V,	U *

Days without Heliograph observations: Daily observations at 80 and 160 MHz
Intermittent observations at 43.25 MHz

* Other type III observed at same position during day.

COSMIC RAY INDICES

(Neutron Monitors)

OCTOBER 1973

Oct. 1973	THULE DAILY AVERAGE COUNTS PER HOUR	DEEP RIVER DAILY AVERAGE COUNTS PER HOUR	CALGARY DAILY AVERAGE COUNTS PER HOUR	SULPHUR MT. DAILY AVERAGE COUNTS PER HOUR	CLIMAX DAILY AVERAGE COUNTS PER HOUR	DALLAS DAILY AVERAGE COUNTS PER HOUR
1	4651.7	7083.1	12022.3	9015.8		6361.7
2	4571.8	7011.7	11937.0	8873.4		6347.9
3	4535.0	6956.1	11812.8	8772.9		6318.7
4	4558.4	6984.4	11870.6	8837.8		6329.5
5	4541.3	7018.1	11901.9	8901.3		6349.8
6	4535.3	7002.3	11891.4	8917.3		6319.3
7	4536.8	7014.2	11887.7	8921.1		6312.6
8	4556.1	7043.3	11984.1	8960.6		6346.5
9	4566.3	7048.4	11981.7	8925.0		6340.3
10	4521.2	7002.9(20)	11886.2	8869.5		6314.0
11	4516.9	6986.4	11865.6	8868.4		6291.9
12	4533.5	6989.2	11883.1	8906.9		6287.6
13	4550.2	6997.8	11903.7	8882.1		6293.5
14	4560.5	7057.9	11937.7	8901.7		6310.0
15	4562.2	7094.0	11997.5	8963.5		6320.4
16	4603.3	7148.4	12062.0	9011.8		6374.8
17	4620.8	7139.7	12060.9	9022.7		6397.7
18	4625.5	7149.0	12057.0	9029.0		6404.7
19	4596.5	7105.0	11999.4	8986.1		6382.5
20	4560.7	7050.1	11944.5	8960.4		6344.7
21	4551.5	7036.6	11934.9	8950.7		6347.8
22	4567.4	7038.1	11979.8	8963.8		6344.8
23	4587.2	7061.8	11990.8	9003.1		6355.5
24	4622.6	7086.4	12070.4	9051.8		6366.0
25	4625.8	7116.3	12122.1(23)	9048.6		6367.0
26	4629.5	7138.6	12145.0	9067.0		6379.8
27	4653.5	7159.9	12199.5	9068.3		6395.5
28	4635.4	7142.8	12181.3	9074.5		6402.7
29	4573.1	7071.9	12057.6	8948.4		6395.0
30	4572.7	7044.1	11947.0	8905.6		6352.6
31	4537.9	7056.5	11974.4	8922.4		6346.3

not available at time of publication

( ) Number of hours for which data are available if less than 24 (or number of section hours if less than 40 for Climax).

Churchill and Dallas Super Neutron Monitors, Scaling Factors 120.

Deep River Super Neutron Monitor, Scaling Factor 300.

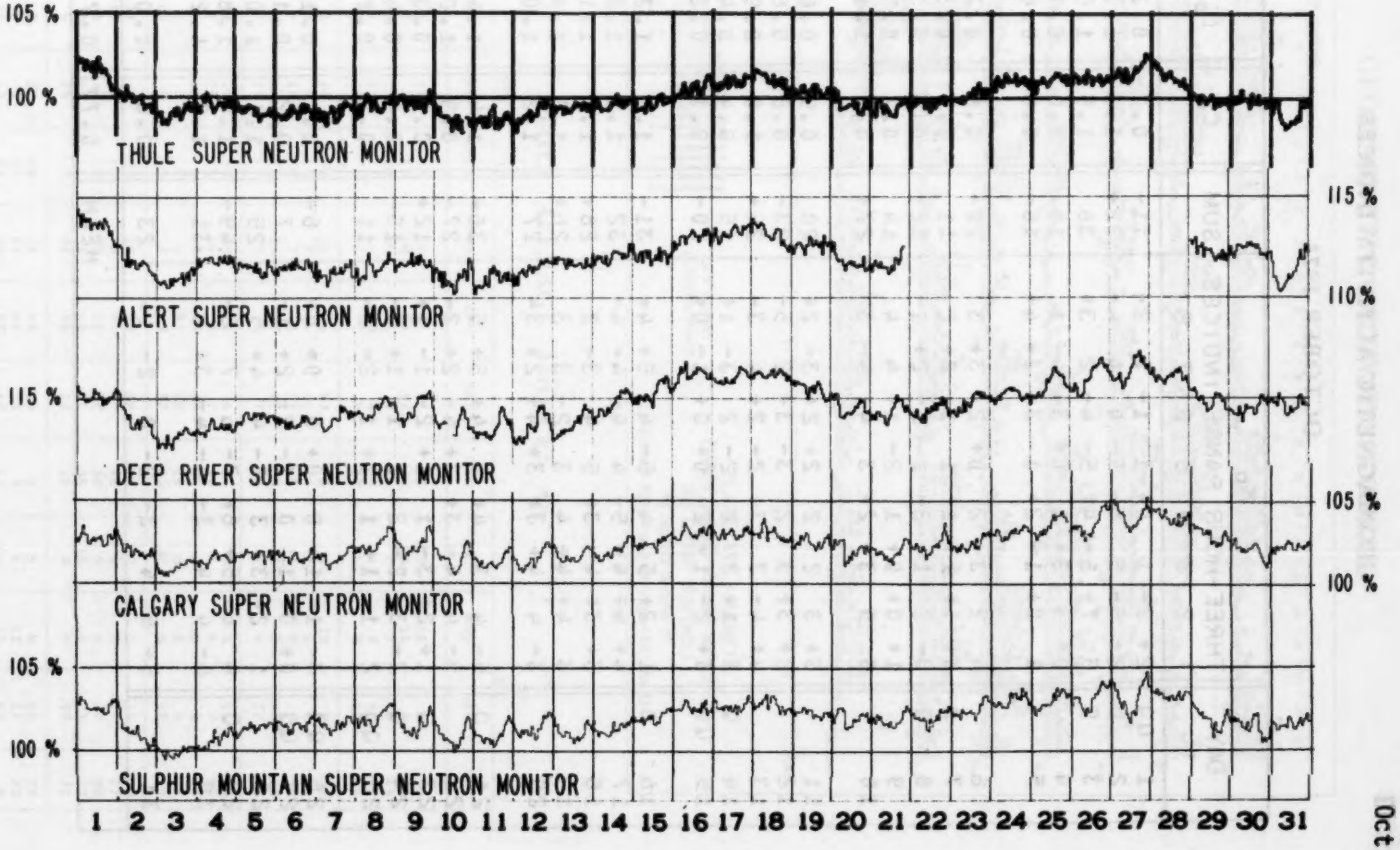
Thule, Calgary and Sulphur Mountain Super Neutron Monitors, Scaling Factors 100.

Climax IGC Station B305, Scaling Factor 100.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

OCTOBER 1973



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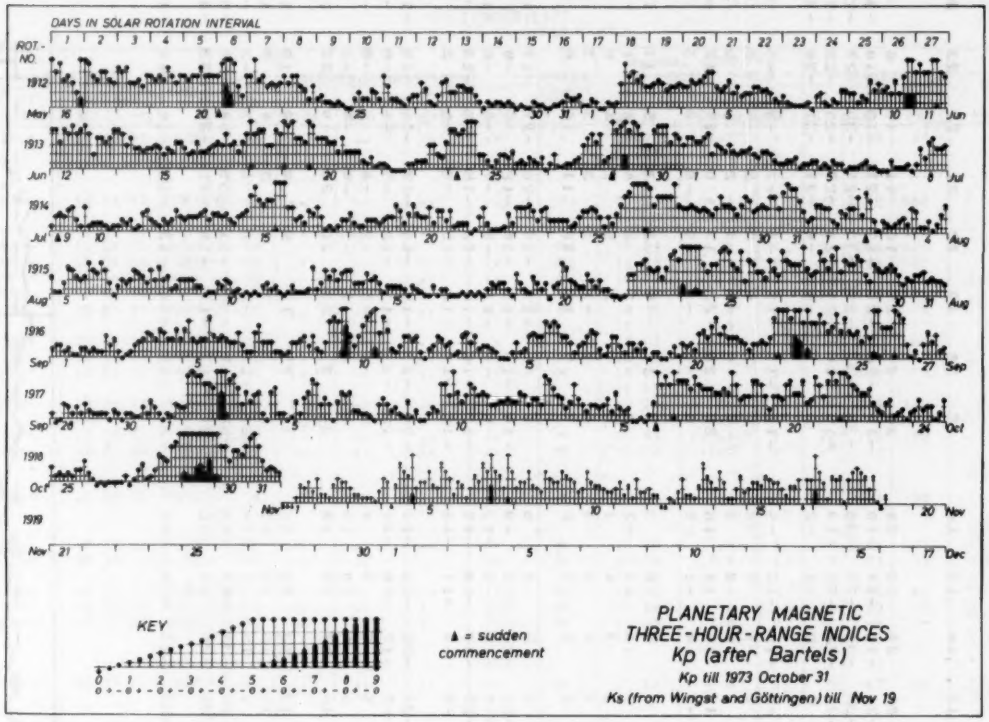
Oct 73

GEOMAGNETIC ACTIVITY INDICES

OCTOBER 1973

DAY		K_p THREE-HOUR RANGE INDICES 1	2	3	4	5	6	7	8	SUM	C_i	C_p	A_p
1	QQ	2+	2-	1	0+	1	1-	2	2-	11-	0.2	0.2	5
2	D	2-	5-	5	5-	5-	4	4	4-	32+	1.3	1.3	31
3	D	5	7+	6-	4+	5-	4-	2	3+	36	1.5	1.6	48
4		2+	3	3+	1	0+	3+	4-	1	18	0.6	0.7	12
5		1	0+	1-	2+	1	3-	3+	4+	16-	0.6	0.6	10
6		4	2	3-	2	0+	2+	3+	3	20-	0.6	0.7	12
7	Q	3+	1+	1+	1	1	1-	0+	2	11	0.2	0.3	6
8	Q	3-	2	1+	2-	1	1-	2+	1-	12+	0.3	0.3	6
9		1+	0+	0+	1	2-	1+	4	4	14	0.7	0.5	10
10		3	5	3+	2+	3	4	4-	3	27+	0.9	1.1	21
11		3+	3	2	2	2+	2+	3-	2+	20	0.5	0.6	11
12		2+	3+	3	2	3-	3-	2	5-	23-	0.8	0.8	15
13		4+	4-	3	3-	2-	2+	4	3-	24+	1.0	0.9	17
14	Q	2	1+	2	2	2-	2	3-	1+	15	0.4	0.4	7
15	QQ	3+	2-	1+	2-	0+	0+	1-	0+	10-	0.1	0.2	6
16	D	1	2+	5	4	5-	4	5+	4+	31-	1.3	1.3	30
17		4+	4+	4-	5-	4	4-	4-	4-	32	1.1	1.2	27
18		3+	3+	4-	3+	5	4	3-	3	28+	1.2	1.1	22
19		3	4+	4+	4	3	2-	3	3	26+	1.0	1.0	20
20		3-	4	4+	3+	3+	4+	2+	3-	27	1.2	1.0	20
21	D	5-	4	3	4+	5	4+	5+	5	36-	1.4	1.4	37
22		5-	4	4-	3+	3+	4-	2+	2-	27-	0.9	1.0	20
23	Q	1+	2+	3-	1	1+	2-	1-	1+	12+	0.2	0.3	6
24	Q	2-	3-	2-	2	2	1-	1+	3-	15-	0.4	0.4	7
25	QQ	2	1	1+	1	1+	1	2-	2-	11	0.2	0.2	5
26	QQ	3-	1+	1-	0	0+	0	0+	0+	6-	0.1	0.1	3
27	QQ	0+	0+	1	0	1-	2-	2+	1-	7	0.2	0.1	4
28		1	2-	3+	3	3-	4	4+	5	25	1.1	1.0	20
29	D	6	6-	5+	6+	7-	6	7	6-	49-	1.9	1.8	86
30		6-	4	4	3-	4-	4-	3+	4	31	1.2	1.2	28
31		5-	5	4	3-	2-	2	2-	1+	23	0.8	1.0	19
										MEAN	0.77	0.78	18

GEOMAGNETIC ACTIVITY INDICES



DAILY AVERAGE INDICES Ap

	1972		1973									
DAY	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	98	6	11	17	22	91	17	3	19	12	5	5
2	42	5	2	14	40	54	12	20	11	16	6	31
3	13	6	2	16	14	26	9	14	7	7	6	48
4	6	4	11	7	4	9	8	19	4	8	12	12
5	3	2	21	9	6	7	5	10	4	9	15	10
6	7	3	20	15	28	4	13	8	3	13	9	12
7	7	10	8	14	8	4	16	4	3	8	8	6
8	7	6	15	25	7	8	17	6	13	9	8	6
9	7	4	16	21	11	7	12	9	8	5	44	10
10	4	2	28	11	8	4	7	33	6	4	27	21
11	7	3	24	8	8	24	6	34	6	4	12	11
12	6	8	25	9	14	3	7	30	6	5	7	15
13	4	38	16	4	5	46	20	24	8	10	8	17
14	4	9	8	7	4	57	80	18	8	8	4	7
15	17	29	9	8	3	9	37	13	32	4	12	6
16	31	33	8	10	12	60	32	11	15	3	14	30
17	12	13	5	16	6	51	27	18	6	2	10	27
18	9	8	3	11	20	46	22	30	6	4	7	22
19	11	7	10	10	82	42	21	38	10	6	3	20
20	27	4	29	9	80	46	23	18	9	9	12	20
21	9	2	22	49	58	42	46	6	5	6	15	37
22	13	14	5	46	53	44	20	3	6	12	17	20
23	11	30	13	48	50	25	15	10	14	22	63	6
24	5	13	22	54	49	14	4	34	6	46	28	7
25	8	4	20	31	50	14	6	6	9	29	27	5
26	14	5	20	34	32	28	8	4	36	18	25	3
27	11	2	33	44	28	26	10	4	29	26	8	4
28	12	4	33	20	22	26	8	21	14	28	4	20
29	9	15	22		16	59	3	41	18	20	4	66
30	4	19	15		15	18	3	29	19	13	4	28
31		13	6		33		4		26	9		19
MEAN	14	10	16	20	25	30	17	17	12	12	14	18

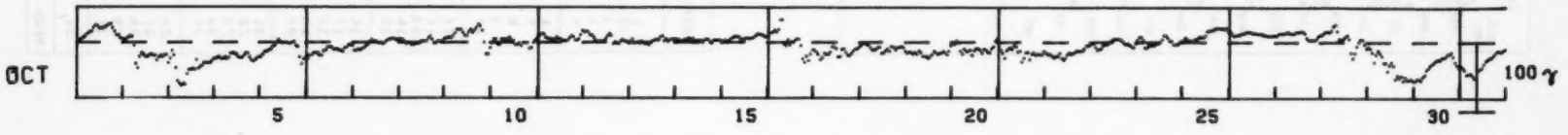
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

OCTOBER 1973

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	2
1	3	5	6	8	11	13	15	16	21	25	24	20	20	21	22	24	26	27	21	16	11	10	6	
2	4	5	7	5	8	-5	-31	-37	-20	-15	-17	-21	-20	-18	-17	-19	-19	-26	-21	-19	-21	-18	-18	-3
3	-23	-12	-19	-37	-55	-60	-63	-59	-61	-46	-39	-39	-38	-39	-25	-38	-35	-33	-29	-30	-29	-30	-27	-2
4	-24	-21	-21	-24	-23	-21	-24	-22	-16	-15	-16	-17	-21	-22	-22	-19	-15	-16	-21	-25	-27	-25	-22	-2
5	-20	-17	-13	-13	-11	-10	-6	-5	-1	4	1	-1	0	0	-1	-2	0	1	-4	-6	-21	-31	-24	-2
6	-24	-19	-18	-15	-19	-15	-19	-19	-12	-11	-7	-6	-7	-10	-10	-9	-11	-11	-13	-8	-7	-3	-3	-4
7	-12	-12	-10	-11	-9	-8	-5	-3	1	4	2	1	0	-1	0	-2	0	3	4	5	6	5	3	
8	5	4	1	-2	0	-1	-3	-4	-2	-2	-1	2	2	1	2	6	9	4	-1	-1	2	1	0	
9	6	7	8	6	10	14	19	18	19	14	10	9	15	19	14	18	22	26	23	17	0	-17	-17	-4
10	-1	5	5	-3	-4	5	5	3	5	7	3	2	-3	-4	-1	-5	0	-1	-1	-9	-8	0	3	
11	9	13	12	8	6	5	5	3	5	8	5	5	3	2	2	3	7	10	8	3	3	5	11	1
12	15	16	15	11	13	7	3	1	2	1	2	5	9	13	10	-2	0	-1	-2	2	4	2	1	-1
13	2	5	-1	0	1	-1	2	0	-2	0	-4	-1	2	3	4	3	8	9	2	5	1	4	5	
14	4	4	2	2	4	4	6	5	6	3	2	3	3	0	3	5	4	1	-1	3	3	3	3	
15	0	3	1	2	4	6	8	9	8	6	4	4	6	6	5	6	7	9	12	12	11	10	8	
16	12	14	14	18	15	19	33	33	-3	-5	4	-4	1	0	3	5	4	-5	-24	-29	-20	-27	-17	-1
17	-11	-14	-18	-25	-22	-16	-17	-17	-14	-6	-6	-9	-21	-20	-10	-9	-14	-19	-19	-16	-12	-9	-9	-1
18	-5	-2	-2	-3	-4	-8	-11	-11	-10	-7	-7	-16	-15	-12	-9	-13	-6	-7	-11	-8	-7	-6	-8	-1
19	-16	-14	-14	-17	-14	-17	-12	-15	-20	-21	-21	-23	-20	-17	-13	-15	-17	-16	-16	-13	-15	-18	-13	-9
20	-1	-3	2	-1	-13	-17	-10	-13	-13	-11	-19	-12	-9	-9	-11	-16	-10	-11	-15	-15	-9	-6	2	
21	-5	-11	-16	-23	-12	-9	-8	-10	-5	-6	-14	-13	-28	-23	-15	-14	-25	-17	-15	-19	-17	-18	-18	-1
22	-15	-18	-17	-20	-22	-20	-21	-16	-23	-26	-22	-18	-15	-17	-16	-14	-12	-13	-13	-12	-9	-5	-5	-4
23	-2	-2	-7	-11	-10	-9	-5	-3	-4	-2	1	4	5	5	5	4	2	-1	-3	-2	-4	-6	-8	-1
24	3	5	8	3	-8	-9	-5	-5	-4	-4	-2	-2	0	4	10	10	6	2	1	-3	-4	-4	-1	
25	2	6	4	2	2	2	4	5	8	7	6	10	16	17	17	18	20	21	20	20	20	19	21	19
26	16	12	9	10	11	11	13	12	14	15	14	14	13	13	12	12	12	11	10	9	9	9	10	13
27	9	12	13	13	12	14	15	13	12	13	14	15	15	16	15	13	6	3	3	3	3	4	8	11
28	10	13	15	15	14	17	23	25	16	5	3	5	8	10	5	-15	-23	-16	-6	0	4	3	-3	-6
29	-7	-9	-15	-29	-18	-12	-16	-20	-30	-30	-42	-33	-29	-34	-53	-48	-52	-49	-56	-51	-55	-54	-53	-5
30	-56	-53	-53	-55	-50	-47	-40	-37	-33	-31	-29	-26	-25	-26	-22	-22	-21	-17	-17	-15	-21	-29	-33	-37
31	-34	-37	-40	-47	-46	-45	-43	-52	-50	-41	-39	-37	-32	-27	-25	-22	-22	-19	-16	-13	-13	-14	-12	-10



PRINCIPAL MAGNETIC STORMS

OCTOBER 1973

DATE 1973 MO DA	STORM TIME UT START	STORM TIME UT END MO DA HR	OBS	GEO-MAG LAT.	SUDDEN COMMENCEMENT TYPE	SUDDEN COMMENCEMENT AMPLITUDES D(')	H(γ)	Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO DA	3-HOUR PERIOD	K INDEX	RANGES D (')	H (γ)	Z (γ)	STORM NUMBERS
10 01	1800	10 03 20	HYDE	7.6N	..	..	..	..	M	10 02	3,5,7	4	4	109	35	47
										10 03	2,3,4	4				47
10 02	05--	10 03 21	COLL	64.6N	..	..	..	..	MS	10 02	4,5	7	274	1550	980	47
										10 03	2	7				47
	07--	10 03 21	SITK	60.0N	..	..	..	..	S	10 03	2	8	190	810	550	47
	04--	10 04 01	NEWP	55.1N					MS	10 03	2	7	74	256	325	47
	05--	10 04 08	FRED	49.6N	..	..	..	..	MS	10 03	2,	6	34	125	95	47
	05--	10 04 10	BOUL	49.0N	..	..	..	..	MS	10 03	2	6	30	115	70	47
	04--	10 03 16	TUCS	40.4N	..	..	..	..	MS	10 03	2	6	15	120	25	47
	05--	10 03 18	HRMN	33.7N	..	..	..	..	M	10 02	6	5	16	93	75	47
										10 03	2,3	*				47
	0439	10 03 17	GUAM	4.0N	..	..	..	..	M	10 03	2	5	0	140	20	47
	02--	10 04 01	APIA	16.1S	..	..	..	..	M	10 03	2	5	4	124	28	47
	04--	10 03 18	PMOR	18.7S	..	..	..	..	M	10 02	3	5	7	140	70	47
										10 03	4	5				47
	04--	10 03 18	GNAN	43.2S	..	..	..	..	M	10 02	4	5	16	120	110	47
										10 03	4,5	5				47
	04--	10 05 01	TOOL	46.7S	..	..	..	..	M	10 03	2,3,4,5	5	22	110	50	47
	04--	10 03 19	KGLN	56.5S	..	..	..	..	M	10 03	1,2,5	5	--	--	--	47
10 05	18--	10 06 03	HRMN	33.7N	..	..	..	..	M	10 05	8	5	7	53	58	48
10 09	18--	10 10 07	HRMN	33.7N	..	..	..	..	M	10 09	7,8	5	19	84	93	49
	1200	10 10 22	HYDE	7.6N	..	..	..	..	M	10 09	7,8	4	3	93	11	49
										10 10	6	4				49
	12--	10 11 03	PMOR	18.7S	..	..	..	..	M	10 10	6	5	5	70	40	49
	19--	10 11 10	GNAN	43.2S	..	..	..	..	M	10 10	6	5	10	70	70	49
	18--	10 11 02	KGLN	56.5S	..	..	..	..	M	10 09	7,8	4	--	--	--	49
										10 10	6	4				49
10 12	21--	10 13 03	HRMN	33.7N	..	..	..	..	M	10 12	8	5	8	47	42	50
10 16	0520	10 19 16	COLL	64.6N	SC *	- 1	+16	--	MS	10 18	5	7	241	1370	1080	51
										10 19	4	7				51
	05--	10 22 20	SITK	60.0N	..	..	..	..	MS	10 18	5	7	70	760	500	51
	0521	10 18 01	NEWP	55.1N	SC	1	9	--	MS	10 16	4	6	42	126	121	51
	0520	10 22 18	TUCS	40.4N	SC	--	+10	+ 1	M	10 16	3,4	5	15	100	30	51
										10 17	2	5				51
										10 18	5	5				51
										10 19	2,3	5				51
										10 21	4,5,7	5				51
										10 22	1	5				51
	05--	10 17 03	HRMN	33.7N	..	..	..	..	MS	10 16	3	6	17	132	86	51
	0530	10 16 14	SJUA	29.9N	SC	--	+ 6	+ 2	M	10 16	3	5	5	45	19	51
	0520	10 16 22	ALIB	9.5N	SC	- 0.2	11	- 3	MS	10 16	3	6	4	164	29	51
	0519	10 17 21	HYDE	7.6N	SC	- 0.2	+10	- 1	MS	10 16	3	7	5	178	14	51
	0642	-- -- --	HYDE	7.6N	SC	- 0.3	+19	- 1	-	-- --	-	-	--	--	--	51
	0520	10 17 18	GUAM	4.0N	..	..	..	..	MS	10 16	3	6	0	100	20	51
	0520	10 16 22	ANNA	1.5N	SC	-05	20	5	MS	-- --	-	-	4	174	47	51
	0520	10 16 22	TVAN	1.1S	SC	01	19	21	MS	-- --	-	-	2	191	163	51
	0520	10 19 15	APIA	16.1S	..	..	..	..	M	10 16	3	5	6	79	24	51
	0520	10 22 12	PMOR	18.7S	SC	+ 0.1	+ 7	+ 7	MS	10 16	3	6	8	110	80	51
	0520	10 22 18	GNAN	43.2S	SC *	- 0	+ 2 *	+ 0	MS	10 18	5	6	25	80	160	51
										10 21	5	6				51
	0520	10 22 03	TOOL	46.7S	SC *	0	+16	0	MS	10 18	5	6	18	150	40	51
	05--	10 22 19	KGLN	56.5S	..	..	..	..	MS	10 18	5	6	--	--	--	51
										10 21	5	6				51
10 18	0536	10 19 15	NEWP	55.1N	SC	6	49	--	M	10 18	5	5	33	130	127	51
										10 19	2,3					51
	1100	10 20 18	HYDE	7.6N	..	..	..	..	M	10 20	6	5	3	79	25	51
10 19	0330	10 22 17	GUAM	4.0N	..	..	..	..	M	10 21	5	5	0	100	20	51
10 20	0248	10 23 18	NEWP	55.1N	..	..	..	..	M	10 20	3	5	41	108	140	51
										10 21	4					51
										10 22	1					51
10 21	0910	10 22 21	COLL	64.6N	SC *	+30	-09	--	MS	10 21	4	7	161	1280	810	51
	01--	10 22 18	FRED	49.6N	..	..	..	..	M	10 21	1	5	20	100	30	51
	12--	10 22 03	HRMN	33.7N	..	..	..	..	M	10 21	7,8	5	18	76	52	51
10 20	2230	10 22 20	HYDE	7.6N	..	..	..	..	M	10 21	5,7	5	3	122	16	51
10 28	08--	10 31 13	COLL	64.6N	..	..	..	..	S	10 29	4	8	496	2410	1500	52
	07--	10 31 12	SITK	60.0N	..	..	..	..	S	10 29	5	8	180	1150	700	52
	0512	10 30 10	NEWP	55.1N	..	..	..	..	MS	10 29	4,5	6	49	247	312	52
	07--	10 31 10	FRED	49.6N	..	..	..	..	MS	10 30	1	6	44	205	115	52

PRINCIPAL MAGNETIC STORMS

OCTOBER 1973

DATE 1973 MO. DA.	STORM TIME UT START	STORM TIME UT END MO. DA. HR	OBS.	GEO-MAG. LAT.	SUDDEN COMMENCEMENT TYPE	AMPLITUDES D(°)	AMPLITUDES H(γ)	AMPLITUDES Z(γ)	C FIGURE DEGREE OF ACTIVITY	MAXIMAL ACTIVITY ON K-SCALE 0 TO 9 MO. DA.	3-HOUR PERIOD	K INDEX	RANGES D (°)	RANGES H (γ)	RANGES Z (γ)	STORM NUMBERS
10 28	07--	10 31 12	BOUL	49.0N	..	..	..	..	MS	10 30	1	6	40	205	110	52
	07--	10 31 10	TUCS	40.4N	..	..	..	..	MS	10 29	2.4.7	6	19	200	40	52
	15--	10 30 03	HRMN	33.7N	..	..	..	..	MS	10 29	5.7	6	43	156	131	52
	0300	10 30 03	HYDE	7.6N	..	..	..	..	MS	10 29	4.5.7	6	7	199	19	52
	0731	10 30 17	GUAM	4.0N	..	..	..	..	MS	10 29	5	6	10	160	30	52
	0730	10 31 12	APIA	16.1S	..	..	..	..	M	10 29	4	5	7	101	20	52
	03--	10 31 18	PHOR	18.7S	..	..	..	..	MS	10 29	5	6	7	140	60	52
	05--	10 30 09	GNAN	43.2S	..	..	..	..	MS	10 29	4.5.7	6	21	130	150	52
	04--	10 31 21	TOOL	46.7S	..	..	..	..	MS	10 29	4.5	6	24	190	70	52
	07--	10 31 17	KGLN	56.5S	..	..	..	..	S	10 29	7	8	--	---	--	52
10 29	03--	10 29 23	ALIB	9.5N	..	...	..	..	MS	10 29	6.7	6	6	147	27	52
	03--	10 29 23	TVAN	1.1S	..	..	..	..	MS	-- --	-	-	2	182	126	52

Reports were received from the following observatories:

College Newport Boulder San Juan Hyderabad Annamalainagar Apia Hermanus Toolangi
Sitka Fredericksburg Tucson Alibag Guam Trivandrum Port Moresby Gnangara Port-aux-Francais

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

OCTOBER 1973

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS (by Dr. A. Romana)

The meaning of the station symbols is given in the IAGA-Bulletins nr. 12 and 32. Times of ssc, si and bay-commencements are mean values. If given by ten or more stations they are underlined.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

16 0520 A: QU; B: LG SZ PM LM; C: VI KA PP
16 0646 A: MA PE QU; B: IK CI TN; C: WN TL (si: B: PM; C: SS PP)

Sudden impulses found in the magnetograms (si)

16 0732 A: FU KA KS QU PM PP; B: SS; C: NI TL

Rapid variations in form of bays (b, bs, bp, bps)

04 1734 b: B: PE - bp: B: WN MA FU IK EB TL - bps: B: QU LM (ssc: B: SO - si: A: KS)
07 2340 bs: A: NU - bp: B: IK PE - bps: A: FU LG CI LM; B: MA EB TL SZ; C: WN (ssc: B: SO - si: A: KS)
13 1818 bs: A: KS - bp: A: FU IK TL PE; B: WN MA EB LM KG - bps: A: LG; B: NI QU
20 1509 bs: A: NU KS - bp: A: FU IK; B: NI EB TL LM; C: KA - bps: A: WN PE; B: QU
21 1922 bs: A: KS - bp: A: EB; B: WN MA LM KG - bps: A: TL PE QU; B: NI IK
24 2119 bs: A: LG KS - bp: A: PE; B: MA FU IK EB LM; C: NI TL SZ - bps: B: QU
29 1832 bp: A: MA EB KG; B: LM - bps: A: WN IK TL QU

Giant pulsations (pg)

12 0612 - 0823 PEA
13 1030 - 1100 FUA
13 1333 - 1345 PEA
13 1730 - 1750 FUA
29 1935 - 2020 SI

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

05 1107 - 1124 NI
15 0906 - 0922 IK
23 0948 - 0955 TN

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

OCTOBER 1973

North Atlantic

OCT. 1973	WHOLE DAY INDICES NORTH ATLANTIC	ADVANCE FORECASTS (JC-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC								GEOMAGNETIC INDICES		
			6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF				K_{FR}		A_{FR}
			00 TO 06	06 TO 12	12 TO 18	18 TO 24	02	08	14	20	HALF DAY (1)	HALF DAY (2)	OBSERVED
01	7-	6	7-	7-	7-	7-	7	6	6	7	2	1	5
02	7-	6	7-	7-	7-	6+	7	6	6	5	(4)	(4)	22
03	5-	6	5-	3+	5+	5+	5	4	5	5	(5)	3	32
04	6o	5	5-	5+	7-	7o	5	5	5	6	2	2	9
05	7-	5	7-	6+	7-	7-	6	6	6	7	1	2	6
06	7-	6	7-	6+	7-	6+	6	6	6	6	2	2	10
07	6+	6	6-	6+	7-	6o	6	6	6	6	2	1	5
08	6o	6	5+	6+	7-	6o	6	6	6	6	2	1	7
09	6+	6	6-	6o	7-	6+	6	6	6	6	1	3	8
10	7-	6	6-	6+	7o	7o	6	5	5	6	3	3	16
11	6+	6	6o	6+	7o	7-	6	5	5	6	3	2	11
12	6o	6	6o	5+	7o	6+	6	5	5	6	3	3	12
13	6+	6	6o	5+	7o	7-	6	6	5	5	(4)	3	18
14	6+	6	6o	6-	7o	7o	5	5	5	6	2	2	6
15	7-	7	6+	7-	7o	7o	6	6	6	6	2	1	6
16	6+	7	6o	6o	7-	6+	6	6	6	6	3	(4)	23
17	5+	7	5+	4+	6o	6o	5	5	5	5	(4)	3	22
18	6o	6	6o	6-	6+	6-	5	4	5	5	(4)	3	19
19	5+	5	5-	5o	6+	6-	6	4	5	6	(4)	2	18
20	6o	4	5-	6-	7o	7-	5	5	5	6	3	2	14
21	6o	4	5+	6-	7-	6o	6	4	5	5	(4)	(4)	30
22	6-	4	5o	5+	6+	7-	4	4	5	5	(4)	2	18
23	6+	5	6+	5+	7o	6+	5	5	6	6	2	1	7
24	6+	6	6+	7-	6+	6+	6	6	6	7	2	2	7
25	7-	7	7-	6+	7o	7-	6	7	6	7	1	2	5
26	7-	7	7-	6+	7o	6+	7	6	6	7	2	0	3
27	7-	7	7-	6+	7o	7o	7	7	6	6	1	1	2
28	7-	7	7-	6+	7o	6+	7	6	6	6	2	(4)	15
29	5o	6	6-	4+	6o	4+	5	4	5	5	(5)	(5)	48
30	5o	5	4-	5o	6+	5o	4	4	5	6	(4)	3	22
31	5-	5	4-	4+	6+	5-	5	4	5	6	(4)	1	14

RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

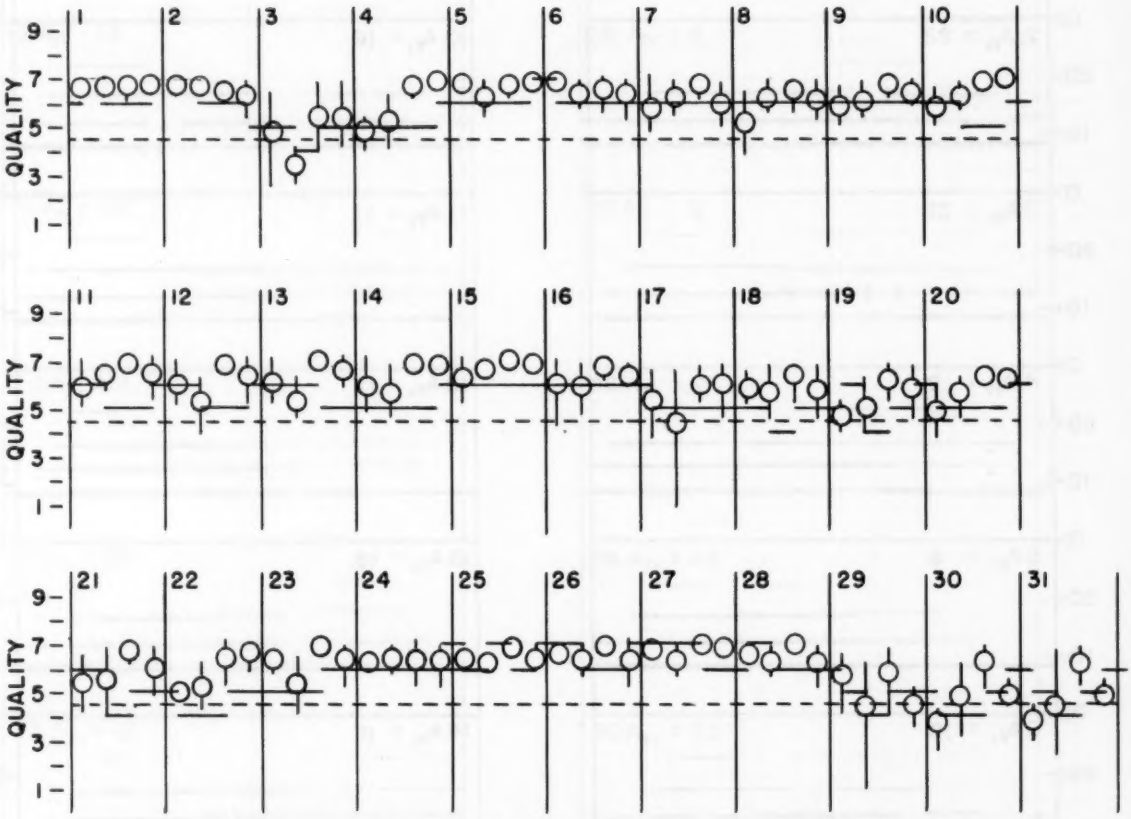
OCTOBER 1973

North Atlantic

– Short term forecast
o Quality figure

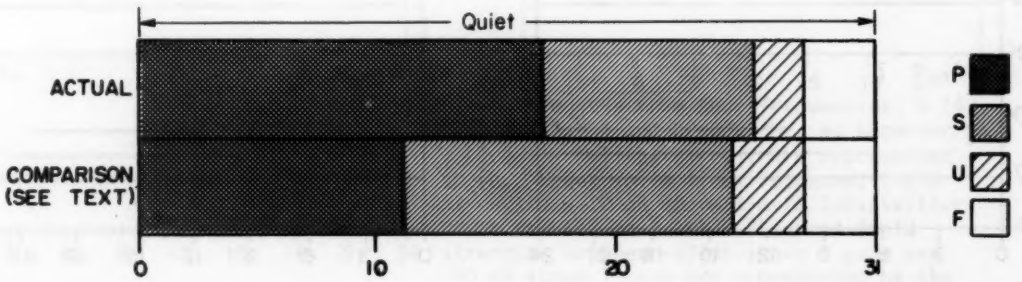
| range of reports

Day



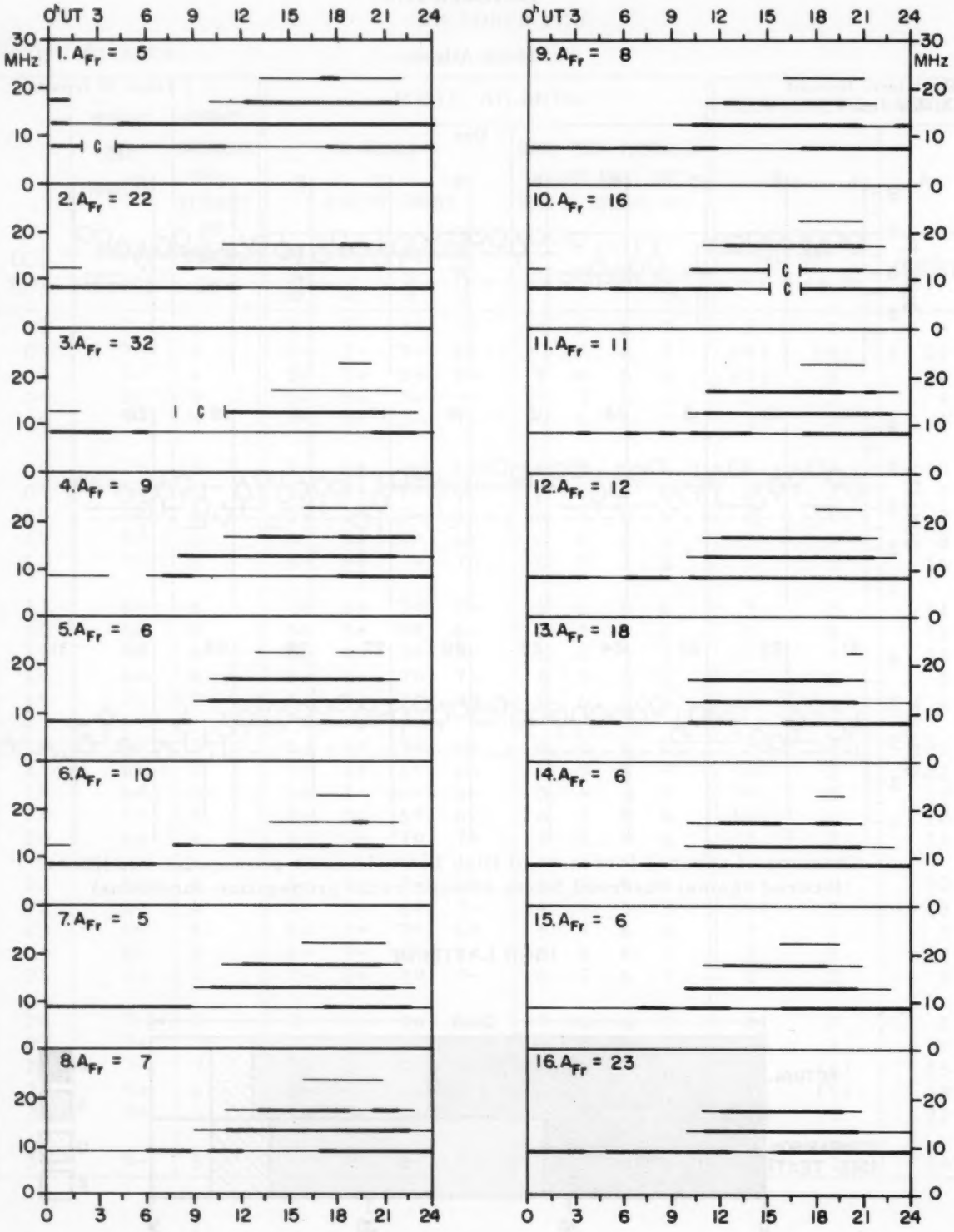
Outcome of advance forecasts of High Latitude radio propagation conditions
(scored against observed North Atlantic radio propagation conditions)

HIGH LATITUDE



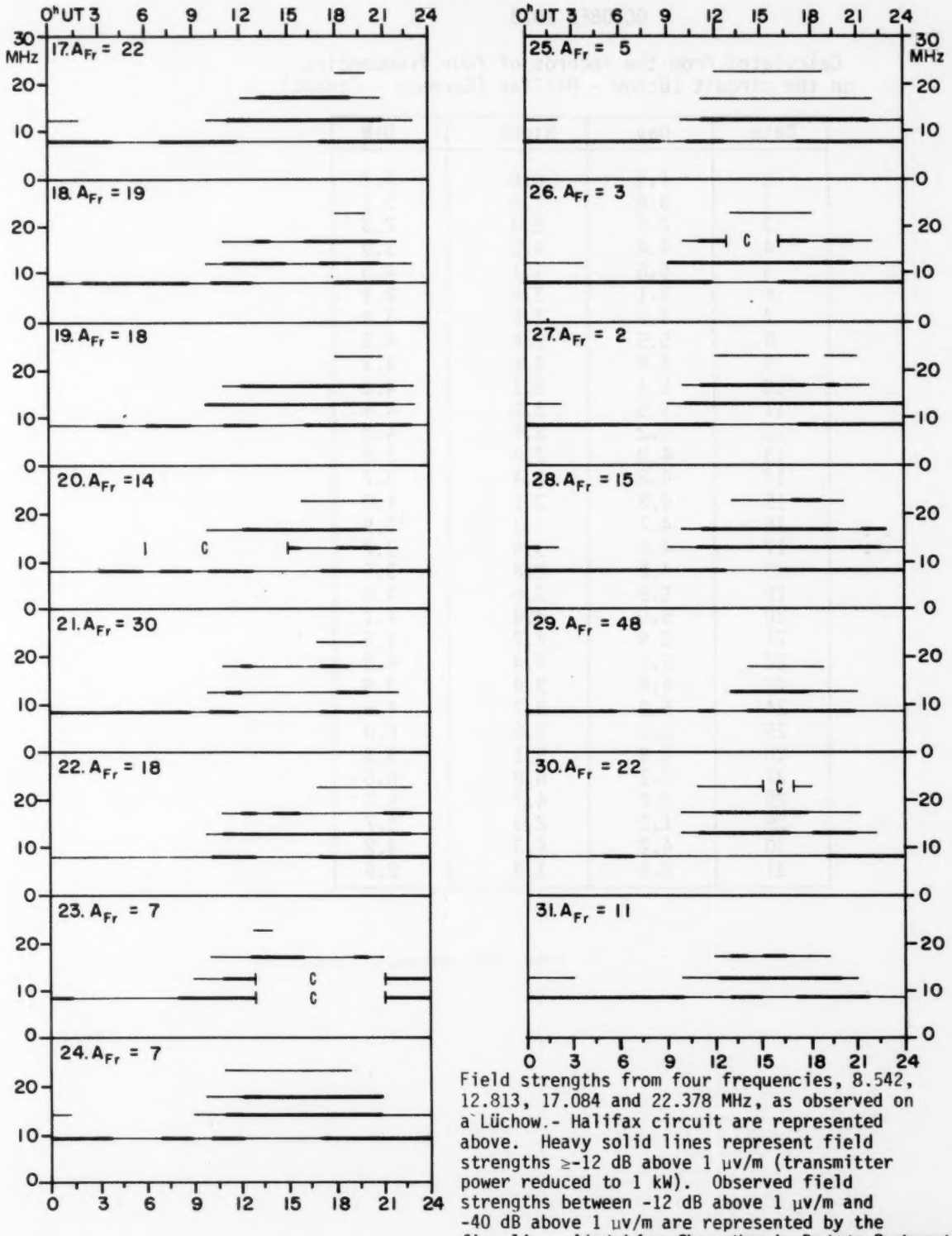
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

OCTOBER 1973



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

OCTOBER 1973



Field strengths from four frequencies, 8.542, 12.813, 17.084 and 22.378 MHz, as observed on a Lüchow.- Halifax circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

OCTOBER 1973

Calculated from the records of four frequencies
on the circuit Lüchow - Halifax (Germany - Canada)

Date	Day	Night	D+N
1	7.3	6.0	6.1
2	3.6	2.8	3.1
3	2.5	2.3	2.3
4	4.4	4.2	3.9
5	5.6	4.1	4.5
6	3.1	3.8	2.9
7	5.2	2.8	3.9
8	5.5	2.6	4.3
9	4.9	4.6	4.3
10	5.4	2.7	4.0
11	5.5	3.9	4.4
12	5.2	2.9	4.0
13	4.9	2.8	3.8
14	4.8	2.4	3.7
15	4.8	3.2	4.0
16	4.7	3.3	3.9
17	4.3	3.5	3.7
18	4.2	2.8	3.5
19	5.9	3.6	4.6
20	5.0	3.4	4.1
21	2.9	2.2	2.6
22	5.1	4.4	4.2
23	4.4	3.4	3.9
24	5.9	3.7	4.8
25	5.3	5.2	5.0
26	5.9	5.1	5.3
27	7.1	6.8	6.5
28	7.8	4.7	5.9
29	1.2	2.3	1.7
30	4.2	4.3	4.2
31	2.9	1.9	2.5

USCOMM - NOAA - ASHEVILLE, NC - 12-31-73-1125

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

SOLAR-GEOPHYSICAL DATA
(comprehensive reports)

U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data Service

DECEMBER 1973

NUMBER 352-PART II
DATA FOR
JUNE 1973
MAY 1973
& MISCELLANEA

U.S. DEPARTMENT OF COMMERCE
Frederick B. Dent, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Robert M. White. Administrator
ENVIRONMENTAL DATA SERVICE
Thomas S. Austin, Director

Solar - Geophysical Data

NO. 352 DECEMBER 1973

Part II (Comprehensive Reports)

DATA FOR
JUNE 1973
MAY 1973
& MISCELLANEA

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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* * * * *

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SOLAR - GEOPHYSICAL DATA

No. 352

Issued in two parts

Hope I. Leighton, Editor

J. Virginia Lincoln, Director
Solar - Terrestrial Data Services Division

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

SOLAR FLARES
Confirmed

JUNE 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
	01	2125	2141	NO FLARE PATROL															
GRP48785	02	0840	0857	0847	N19	W82	.992	12364	27.2	17	-N				.52				4 4 4 6
ATHN	02	0840	0856	0846	N21	W83	.994	12364	27.1	16	-N	3	C		.50				DE
ARCE	02	0840E	08500		N18	W80	.987	12364	27.4	100	-N		C	0845	.29				
TEHR	02	0841	0858	0847	N16	W84	.995	12364	27.1	17	-N	2	C		.28				DE
CAPS	02	0842E	08520		N20	W79	.984	12364	27.4	100	-F		V	0847	1.00			(156)	
GRP48789	02	1255	1305	1258	N18	W81	.989	12364	27.5	10	-N				.46				5 5 5 7
ATHN	02	1254E	1304	1256	N16	W84	.995	12364	27.2	100	-N	3	V		.50				DE
ATHN	02	1254	1303	1257	N22	W83	.994	12364	27.3	9	-N	3	C		.17				DE
RAMY	02	1255	1304	1259	N17	W80	.987	12364	27.5	9	-F	4	C		.66				DE
CATA	02	1255	13050	1300	N21	W77	.978	12364	27.8	100	-F	3	P	1300	.29			(141)	
TEHR	02	1255	1307	1258	N16	W86	.998	12364	27.1	12	-N	2	C		.36				DE
TEHR	02	1255	1307	1258	N16	W86	.998	12364	27.1	12	-N	2	V		.36				DE
CAPS	02	1257E	13050		N19	W78	.981	12364	27.7	90	-N	3	S	1258	.30				
	02	2215	2217	NO FLARE PATROL															
790 MANI	02	2310E	23150	2310U	N17	W86	.998	12364	27.5	50	-N	1		2310	.31	.90			2
	03	1905	1924	NO FLARE PATROL															
	03	2036	2230	NO FLARE PATROL															
GRP48791	04	0841	0858	0846	N14	E65	.913	12375	9.2	17	--N				.20				3 3 3 6
ARCE	04	0840E	09000		N13	E66	.919	12375	9.3	200	-N		C	0845	.17	.40			
ATHN	04	0842	0855	0844	N13	E64	.905	12375	9.2	14	-N	2	C		.33				DE H
MONT	04	0842	0857	0847	N16	E66	.921	12375	9.3	15	-N		C	0847	.10				H
	04	2237	2245	NO FLARE PATROL															
	05	1906	1916	NO FLARE PATROL															
	06	1929	2018	NO FLARE PATROL															
	06	2108	2130	NO FLARE PATROL															
795 BOUL	06	2130E	21530	2132U	N16	E85	.997	12379	13.3	230	1F		V	2132		2.40			2
	06	2153	2155	NO FLARE PATROL															
	06	2158	2215	NO FLARE PATROL															
796 PALE	06	2253E	2301	2255	N15	E86	.998	12379	13.4	80	--F	2	C		.36				F 3
GRP48797	07	1116	1131	1120	N15	E80	.986	12379	13.5	15	--F				.33				2 2 2 6
ATHN	07	1116	1126	1120	N15	E80	.986	12379	13.5	10	-N	3	C		.33				DE
ARCE	07	1116	1133	1120	N15	E80	.986	12379	13.5	19	-F		C	1120	.32				
GRP48793	07	1235	1249	1237	S19	W32	.598	12366	5.1	14	--F				.65				4 4 4 5
RAMY	07	1232	1249	1237	S18	W33	.603	12366	5.0	17	-N	3	C		.46				DE
TEHR	07	1235	1256	1236	S18	W31	.579	12366	5.2	21	-F	3	C		1.00				F H
MCMA	07	1235	1249	1238	S21	W31	.600	12366	5.2	14	-F		C	1238	.52	.60			EH
MEUD	07	1237	1243	1238	S18	W33	.603	12366	5.1	6	-F		C	1238	.62	.80			I
GRP48800	07	1419	1429	1422	N16	E81	.989	12379	13.7	10	-N				.31				3 3 2 6
ATHN	07	1419	1430	1423	N15	E80	.986	12379	13.6	11	-N	3	C		.33				DE
BOUL	07	1419	1426	1421	N17	E85	.997	12379	14.0	7	-N		V	1421					
RAMY	07	1420	1430	1422	N16	E78	.980	12379	13.4	10	-N	4	C		.28				DE
803 HUAN	07	1755	1758	1756	N13	E73	.959	12379	13.2	3	--F	1	C	1756	.21				D 4
804 PALE	07	2253E	2259	2254U	N16	E86	.998	12385	14.4	60	--F	2	V		.36				3
805 PALE	07	2257E	2308	2300U	N14	E16	.360	12375	9.2	110	--F	2	C		.45				F 3
GRP48808	08	1843	1856	1846	S13	E62	.890	12380	13.4	13	--F				.29				3 3 2 3
BOUL	08	1840	1858	1840U	S12	E62	.889	12380	13.4	18	-F		V			.60			
MCMA	08	1842	1857	1849	S15	E60	.876	12380	13.3	15	-F		C	1849	.31	.70			E
HUAN	08	1847	1854	1849	S12	E63	.896	12380	13.5	7	-F	1	C	1849	.26	.55			D
	08	2109	2110	NO FLARE PATROL															
	08	2150	2153	NO FLARE PATROL															
	08	2202	2245	NO FLARE PATROL															
809 BOUL	08	2310	2316	2314	S14	W72	.954	12366	3.6	6	--F		V			.60			3

Note: Catania and Capri-S express Maximum Intensities in percent of the local undisturbed chromosphere instead of percent of the local continuum. Parentheses are used to indicate this difference.

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
810 MANI	09	0027	01110	0044	N20	E57	.858	12379	13.3	440	--F	2		0044	.62	1.11			F 2
811 MANI	09	0246	0318	0306	N14	E03	.243	12375	9.3	32	--N	2		0306	.31	.32			2
GRP48813	09	1815	1842	1818	N16	E45	.732	12379	13.1	27	-N				.64				6 6 5 6
CANR	09	1809	1833	1818	N18	E43	.717	12379	13.0	24	-B		V			1.10			
CANR	09	1809	1833	1811	N17	E45	.735	12379	13.1	24	-B		V			.30			
BOUL	09	1813	1850	1818	N16	E44	.721	12379	13.1	37	-N		V	1818	1.40	2.00			
HUAN	09	1815	18390		N17	E45	.735	12379	13.1	240	-F	1	P	1816	.36	.53			E
PALE	09	1816E	1845	1816	N16	E46	.743	12379	13.2	290	-N	3	C		.55				DE
MCMA	09	1816	1945	1818	N16	E46	.743	12379	13.2	29	-N		C	1818	.52	.80			E
RAMY	09	1818	18290	1818U	N15	E45	.729	12379	13.1	110	-N	2	C		.37				DE
GRP48815	09	2243	2255	2245	N12	W11	.276	12375	9.1	12	--F				.19				2 2 1 3
BOUL	09	2241	2255	2245	N12	W10	.265	12375	9.2	14	-N		V						
PALE	09	2245	22490	2245	N12	W11	.276	12375	9.1	40	-F	3	C		.19				F
	10	0005	0027	NO FLARE PATROL															
GRP48820	10	1145	1206	1147	N15	E14	.344	12377	11.5	21	--N				.60				5 5 5 8
RAMY	10	1145	1203	1147	N16	E15	.367	12377	11.6	18	-F	4	C		.65				DE
TEHR	10	1145	1203	1147	N13	E13	.309	12377	11.5	18	-N	3	C		.36				DE
MCMA	10	1145	1215	1147	N16	E15	.367	12377	11.6	30	-N		C	1147	.52	.50			E
CATA	10	1146	1202	1146	N15	E16	.367	12377	11.7	16	-N	3	C	1146	.87	.93		(155)	
CAPS	10	1148E	12050		N15	E13	.333	12377	11.5	170	-F	3	V	1150	.60	.60		(155)	
GRP48823	10	2057	2112	2101	N15	E31	.558	12379	13.2	15	--N				.71				3 3 3 3
MCMA	10	2057	2112	2101	N15	E31	.558	12379	13.2	15	-N		C	2101	.52	.60			E
PALE	10	2056E	21060	2101	N13	E31	.548	12379	13.2	80	-N	3	C		.88				F
HUAN	10	2100E	21050		N16	E31	.564	12379	13.2	50	-F	1	P	2102	.72	.88			E
824 PALE	10	2149E	2158	2152	N12	E29	.515	12379	13.1	90	--N	3	C		.45				DE 2
825 PALE	11	0010	0016	0013	N12	W27	.487	12375	9.0	6	--F	3	C		.36				DE 3
GRP48828	11	0835	0847	0837	N14	E85	.996	12387	17.7	12	--N				.24				3 3 3 7
ATHN	11	0835E	0853	0837	N13	E86	.998	12387	17.8	180	-N	4	V		.33				DE
CANR	11	0835	0842	0837	N15	E82	.991	12387	17.5	7	-N		V	0837	.30				
MONT	11	0836	0845	0837	N14	E86	.998	12387	17.8	10	-N		C	0837	.10				D
829 PALE	12	0202	0226	0202U	N13	W43	.699	12375	8.9	24	--F	3	C		.27				DE 3
GRP48832	12	0551	0658	0622	N13	E72	.953	12387	17.6	67	1F				2.22				3 2 2 11
ABST	12	0551E	06370	0622	N13	E72	.953	12387	17.6	460	1F		P	0622	1.35			80	FJ
WEND	12	0612	06580		N13	E72	.953	12387	17.7	460	1N		P		3.09				
ARGE	12	0637E	0655		N13	E70	.942	12387	17.5	180	-N		C	0637	.62				
GRP48838	12	0955	1010	1002	N13	W49	.767	12375	8.7	15	--F				.22				2 2 2 8
MONT	12	0955	1009	1001	N14	W48	.758	12375	8.8	14	-N		C	1001	.10				
ATHN	12	1000E	10100	1002	N12	W49	.765	12375	8.7	100	-F	2	C		.33				DE
841 PALE	12	1916	19310	1918	N14	W52	.800	12375	8.9	150	--F	2	C		.45				F 2
842 PALE	12	1948E	19480	1948U	N11	E63	.894	12387	17.6		--N	2	C		.36				DE 3
GRP48843	12	2211	2239	2212	N11	E60	.870	12387	17.4	28	--F				.45				2 1 1 2
PALE	12	2211E	2239	2212U	N11	E60	.870	12387	17.4	280	-F	2	C		.45				DE
BOUL	12	2224E	2240	2230U	N14	E61	.881	12387	17.5	160	-F		V	2230		.60			
844 PALE	12	2227E	2233	2227U	N14	W51	.790	12375	9.1	60	--N	2	V		.21				2
	12	2256	2301	NO FLARE PATROL															
	12	2305	2311	NO FLARE PATROL															
GRP48850	13	1244	1303	1245	N12	E54	.816	12387	17.6	19	--N				.37				3 3 3 7
HUAN	13	1243	1301	1245	N13	E55	.827	12387	17.7	18	-N	2	C	1245	.31	.53			
CATA	13	1245	1300	1245	N11	E54	.815	12387	17.6	15	-B	3	C	1245	.58	1.00		(204)	
MCMA	13	1245E	1308		N12	E53	.806	12387	17.5	230	-N		P	1245	.21	.40			DH
GRP48855	13	1723	1734	1726	N17	W05	.292	12379	13.3	11	--F				.21				2 2 1 5
BOUL	13	1723	1731	1726	N16	W05	.276	12379	13.3	8	-N		V	1726					
BOUL	13	1723	1731	1731	N16	W05	.276	12379	13.3	8	-N		V	1726					
MCMA	13	1724E	1737		N18	W04	.304	12379	13.4	130	-F		P	1730	.21	.20			D

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT. %	
GRP48856	13	1757	1841	1806	N12	E50	.775	12387	17.5	44	-N				.77				4 4 2 4
MCMA	13	1756	1848		N12	E50	.775	12387	17.5	52	-N		P	1805	.62	1.00			E
BOUL	13	1756	1848	1806	N13	E50	.777	12387	17.5	52	1N		V	1801		3.20			
BOUL	13	1756	1848	1801	N13	E50	.777	12387	17.5	52	1N		V	1801		3.20			
CANR	13	1758	1828	1803	N13	E49	.767	12387	17.4	30	-N		V			1.30			
PALE	13	1809E	1813D	1809U	N11	E50	.774	12387	17.5	40	-N	2	C		.91				OE
857 MCMA	13	1932	2013D		N17	W63	.899	12375	9.1	410	--F		P	1936	.21	.40			D 1
	13	2030	2142	NO FLARE PATROL															
GRP48860	14	0206	0429	0429	N12	W67	.923	12375	9.1	143	1N				3.30				3 1 1 4
KODA	14	0206E	0429D	0429	N12	W67	.923	12375	9.1	1430	1N		P	0211	3.30	3.29	1.96		D
CRON	14	0320E	0324D	0324	N13	W71	.947	12375	8.8	40	-N		V	0324	.40				
ATHN	14	0340E	0420	0340U	N12	W71	.947	12375	8.8	400	-N	1	V		.50				OE
GRP48862	14	0640	0715	0704	N15	W76	.971	12375	8.6	35	-B				.27				4 2 2 6
CRON	14	0601E	0655	0610	N13	W72	.953	12375	8.9	540	-N		V	0610	.40				
BUCA	14	0640	0720		N15	W75	.967	12375	8.7	40	-B		P	0646	.44				D
MONT	14	0640E	0709	0653	N14	W76	.971	12375	8.6	290	-N		C	0653	.10				D
ABST	14	0711E	0729D	0714	N13	W75	.967	12375	8.7	180	1F		P	0714	1.44				F
GRP48870	14	1017	1024	1020	N12	E41	.671	12387	17.5	7	--N				.50				3 3 3 6
MEUD	14	1016	1022	1019	N12	E40	.659	12387	17.4	6	-F		C	1019	.41	.50			
CAPS	14	1016E	1026D		N12	E43	.696	12387	17.7	100	-B	2	V	1017	.50	.70		(277)	
CATA	14	1020	1025	1020	N12	E41	.671	12387	17.5	5	-B	3	C	1020	.58	.78		(224)	
GRP48871	14	1615	1647	1631	N15	E44	.715	12387	18.0	32	--N				.54				5 4 3 6
BOUL	14	1613E	1652D	1613E	N16	E43	.707	12387	17.9	390	-B		V	1613					
HUAN	14	1614	1622D		N15	E44	.715	12387	18.0	80	-F	1	P	1620	.36	.50			E
MCMA	14	1614	1701D		N13	E46	.733	12387	18.1	470	-N		P	1616	.26	.40			E
CANR	14	1619	1628	1621	N15	E44	.715	12387	18.0	9	-N		V	1621	1.00	1.30			
PALE	14	1639E	1650	1640U	N13	E44	.710	12387	18.0	110	-N	2	C		.27				
872 PALE	14	1916	1923	1917	N16	W77	.975	12375	9.0	7	--F	3	C		.27				2
GRP48873	14	2028	2113	2041	N14	W81	.988	12375	8.8	45	-F				.27				2 2 1 3
BOUL	14	2026	2110	2031	N13	W80	.985	12375	8.9	44	-N		V	2027		.70			
BOUL	14	2026	2110	2027	N13	W80	.985	12375	8.9	44	-N		V	2027		.70			
PALE	14	2029	2043D	2036	N16	W76	.979	12375	9.0	140	-F	2	C		.27				
BOUL	14	2043	2116	2046U	N11	W87	.999	12375	8.3	33	1N		V	2046		3.20			
874 BOUL	14	2049	2056	2051	N12	E35	.594	12387	17.5	7	--F		V	2056		.30			2
877 PALE	14	2213E	2222	2216U	N16	W78	.979	12375	9.1	90	-N	2	C		.36				4
GRP48878	15	0025	0036	0029	N12	E31	.540	12387	17.3	11	-N				1.06				3 3 3 3
CRON	15	0024	0035	0028	N11	E30	.521	12387	17.3	11	-N		V	0028	.90				
VORO	15	0026	0037	0027	N14	E32	.562	12387	17.4	11	-N		C	0027	1.68	2.00		60	E
PALE	15	0030E	0036	0033	N10	E32	.546	12387	17.4	60	-N	3	V		.62				F
GRP48882	15	0511	0548	0514	S14	W07	.284	12382	14.7	37	-F				.95				4 3 3 7
ABST	15	0511E	0553D	0512	S15	W05	.288	12382	14.8	420	-N		P	0512	1.44	1.50			EG
ATHN	15	0514E	0547	0516	S12	W10	.262	12382	14.5	330	-F	3	V		.66				F
CRON	15	0519E	0538		S14	W05	.272	12382	14.8	190	-F		V		.75				
WEND	15	0530E	0555		S15	W08	.307	12382	14.6	250	1N		V		3.09				
13 STATIONS REPORTING GROUP 48885. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48885	15	1405	1455	1413	N17	W32	.578	12379	13.2	50	1B				4.33				11 10 10 12
RAMY	15	1401	1457	1414	N15	W32	.567	12379	13.2	56	1B	4	C		3.90				FDE
ATHN	15	1402E	1412D	1412D	N15	W34	.593	12379	13.0	100	1B	3	V		3.96				U F
MCMA	15	1404	1509		N18	W32	.584	12379	13.2	65	1B		P	1413	1.80	2.20			FL
HUAN	15	1404	1453	1411	N17	W31	.566	12379	13.3	49	1B	2	C	1411	3.20	4.00			
CATA	15	1405	1430D	1415	N18	W32	.584	12379	13.2	250	2B	3	P	1415	5.21	6.42		(339)	
CANR	15	1407	1455	1410	N19	W32	.590	12379	13.2	48	2B		V	1412	6.00	6.00			
MEUD	15	1407	1445	1412	N18	W31	.572	12379	13.3	38	2N		C	1412	4.64	5.50			F
ZURI	15	1408	1445	1414	N17	W33	.591	12379	13.1	38	2N		C	1414	5.67	7.20			
TEHR	15	1408E	1456	1415	N15	W36	.618	12379	12.9	480	1B	4	V		3.96				F U
TEHR	15	1408E	1456	1408U	N15	W36	.618	12379	12.9	480	1B	3	V		3.96				F U
CAPS	15	1410E	1458D		N15	W27	.502	12379	13.6	480	2B	3	P	1415	5.80	5.50		(308)	C
CAPF	15	1442E	1509		N19	W35	.626	12379	13.0	270	1N		P	1447	3.09	3.75			
48885	15	1406	1445	1425	N16	W34	.598	12379	13.0	39	*-B				1.55				2 2 1 11
BOUL	15	1406E	1429D		N15	W34	.593	12379	13.0	230	1N		V						
HERS	15	1425E	1445D	1425E	N17	W33	.591	12379	13.1	200	-B		P	1425	1.55	1.90	.15		BE

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP48888	15	2200	2232	2205	S15	W15	.372	12382	14.8	32	-B				.87				4 4 3 5
BOUL	15	2200	2250	2205	S15	W16	.383	12382	14.7	50	-N		V						
VORO	15	2200	2222	2204	S15	W14	.361	12382	14.9	22	-B		C	2204	1.29	1.37		65	EGH
PALE	15	2201	2225	2206U	S14	W15	.360	12382	14.8	24	-N	3	C		.81				U
MCMA	15	2205E	2209D		S14	W16	.372	12382	14.7	40	-B		P	2206	.52	.60			EL
GRP48889	15	2230	2251	2234	N18	W37	.644	12379	13.2	21	--F				.34				3 3 2 5
BOUL	15	2230E	2252	2234	N17	W37	.640	12379	13.2	220	-F		V						
PALE	15	2233E	2250	2233U	N21	W36	.648	12379	13.2	170	-F	3	C		.27				F
MANI	15	2235E	2250D	2235U	N17	W37	.640	12379	13.2	150	-N	1		2235	.41	.54			F
GRP48891	16	0041	0101	0043	N14	E26	.481	12387	18.0	20	--N				.45				3 3 3 4
BOUL	16	0040	0107	0044	N15	E22	.435	12387	17.7	27	-N		V		.50	.50			
CRON	16	0041E	0050	0043	N13	E28	.503	12387	18.1	90	-N		V	0043	.40				
PALE	16	0042	0106	0042	N13	E27	.489	12387	18.1	24	-N	3	C		.45				
PALE	16	0046	0052	0048	N13	E27	.489	12387	18.1	6	-F	2	V		.52				
GRP48893	16	0859	0939	0901	N17	W90	1.000	12375	9.6	40	-N				.35				5 5 4 9
MONT	16	0856	0945	0902	N18	W90	1.000	12375	9.6	49	-N		C	0902	.21				D
MEUO	16	0856	0942	0901	N19	W90	1.000	12375	9.6	46	-N		C	0901	.41				
CANR	16	0858	0915	0900	N15	W90	1.000	12375	9.6	17	-B		V						
CATA	16	0900	0945	0900	N18	W90	1.000	12375	9.6	45	1F	3	C	0900	.58			(129)	
UPIC	16	0903	0947		N17	W90	1.000	12375	9.6	44	-N		P	0904	.21				
GRP48894	16	1419	1513	1427	N13	E11	.278	12387	17.4	54	2B				7.23				9 9 9 9
RAMY	16	1403	1519	1425	N13	E11	.278	12387	17.4	76	2B	3	C		10.30				DE
RAMY	16	1403	1519	1407	N13	E11	.278	12387	17.4	76	-N	3	C		.28				DE
TEHR	16	1417	1508	1425	N10	E10	.231	12387	17.3	51	1B	3	C		4.85				U H
ATHN	16	1418	1512	1427	N13	E12	.289	12387	17.5	54	2B	3	C		7.26				U F
MEUO	16	1420	1500	1425	N14	E10	.280	12387	17.3	40	2N		C	1425	5.67	5.70			F
HUAN	16	1420	1504	1425	N12	E12	.278	12387	17.5	44	1B	2	C	1425	3.92	4.07			U
BOUL	16	1420	1520	1426	N13	E11	.278	12387	17.4	60	2N		V	1426	9.20	9.20			
WEND	16	1420	1533	1438	N11	E13	.280	12387	17.6	73	2N		P		12.38				
CANR	16	1421	1455	1425	N13	E10	.267	12387	17.3	34	2B		V	1427	6.50	7.20			
CAPS	16	1426E	1530D		N15	E12	.313	12387	17.5	640	2B	3	P	1432	5.00	5.30		(330)	U
GRP48895	16	1424	1443	1425	N04	E04	.086	12389	16.9	19	--F				.46				4 4 4 9
BOUL	16	1423	1447	1424	N04	E03	.072	12389	16.8	24	-F		V	1424	.80	.80			
TEHR	16	1423	1450	1426	N03	E03	.062	12389	16.8	27	-N	3	C		.36				DE
HUAN	16	1424	1443	1425	N05	E04	.097	12389	16.9	19	-F	1	C	1425	.26	.26			
MEUO	16	1424	1430	1425	N05	E04	.097	12389	16.9	6	-F		C	1425	.41	.40			
GRP48896	16	1536	1619	1541	N14	E11	.290	12387	17.5	43	-N				2.10				8 8 8 10
MCMA	16	1516E	1638D		N15	E10	.293	12387	17.4	820	-N		P	1546	1.55	1.50			BF
BOUL	16	1524	1531	1526	N12	E10	.254	12387	17.4	7	-F		V	1526	.80	.80			
RAMY	16	1534	1618	1540	N15	E12	.313	12387	17.5	44	1N	4	C		2.32				F
WEND	16	1534	1646D	1543	N13	E12	.289	12387	17.3	720	1F		P		5.16				
HUAN	16	1535	1627	1539	N14	E12	.301	12387	17.5	52	-N	1	C	1539	1.44	1.51			
ATHN	16	1537	1616	1543	N14	E11	.290	12387	17.5	39	1N	3	C		2.31				F
CAPS	16	1538E	1600D		N16	E11	.316	12387	17.5	220	-B	3	S	1540	1.80	1.90		(230)	C
BOUL	16	1538	1613	1542	N15	E08	.275	12387	17.3	35	-N		V	1542	1.00	1.00			
CANR	16	1539	1551	1541	N14	E10	.280	12387	17.4	12	-B		V	1542	1.20	1.50			
GRP48897	16	1811	1828	1815	N14	E13	.312	12387	17.7	17	--F				.50				4 4 3 7
BOUL	16	1810	1821	1812	N14	E12	.301	12387	17.7	11	-F		V	1812	.50	.50			
HUAN	16	1810	1829	1818	N13	E13	.301	12387	17.7	19	-N	2	C	1818	.62	.64			
MEUO	16	1812	1828	1816	N14	E13	.312	12387	17.7	16	-F		C						
RAMY	16	1814E	1833	1815U	N14	E12	.301	12387	17.7	190	-F	4	V		.37				DE H
GRP48898	16	1858	1924	1905	N14	E12	.301	12387	17.7	26	--N				.39				4 4 2 6
MCMA	16	1854E	1907D		N15	E10	.293	12387	17.5	130	-N		V						DH
RAMY	16	1857	1917	1901	N14	E12	.301	12387	17.7	20	-F	3	V		.37				DE H
HUAN	16	1857	1918	1906	N13	E13	.301	12387	17.8	21	-N	2	C	1906	.41	.43			H
BOUL	16	1905	1936	1908	N13	E11	.278	12387	17.6	31	-N		V	1908					
	16	1943	1947	NO FLARE PATROL															
GRP48899	16	1947	2005	1952	N11	E10	.242	12387	17.6	18	--F				.48				2 2 2 2
HUAN	16	1947E	1950		N10	E11	.243	12387	17.6	30	-N	1	P	1947	.46	.48			C
BOUL	16	1950E	2020	1952	N12	E09	.243	12387	17.5	300	-F		V		.50	.50			
GRP48900	16	2014	2024	2017	S15	W27	.518	12382	14.8	10	--F				.60				2 2 1 3
HUAN	16	2013	2023	2015	S15	W26	.505	12382	14.9	10	-F	1	C						
BOUL	16	2014	2024	2019	S15	W28	.531	12382	14.7	10	-F		V		.60	.70			

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	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP48901	16	2019	2108	2024	N13	E11	.276	12387	17.7	49	--N				.53				2 2 2 3
HUAN	16	2016	2037	2024	N13	E12	.289	12387	17.7	21	-N	2	C	2024	.26	.27			
BOUL	16	2021	2114	2024	N12	E10	.254	12387	17.6	53	-N		V		.80	.80			
BOUL	16	2021	2114	2029	N12	E10	.254	12387	17.6	53	-N		V		.80	.80			
HUAN	16	2055	2102	2059	N13	E12	.289	12387	17.8	7	-F	1	C	2059	.26	.27			D
GRP48902	16	2122	2152	2128	N13	E11	.278	12387	17.7	30	--F				.43				2 2 2 2
HUAN	16	2116	2125D		N13	E12	.289	12387	17.8	8D	-F	1	P	2126	.36	.37			
BOUL	16	2125	2152	2128	N13	E09	.256	12387	17.6	27	-N		V		.50	.50			
GRP48910	17	0812	0833	0815	S15	W33	.594	12382	14.9	21	--N				.74				9 9 8 11
TEHR	17	0809	0834	0812	S13	W32	.571	12382	14.9	25	-N	3	C		.50				F
MANI	17	0810	0831	0813	S13	W33	.583	12382	14.9	21	-N	2		0813	.93	1.13			
BUCA	17	0810	0832		S15	W35	.619	12382	14.7	22	-F		C	0812	.55	.70			
CAPS	17	0810D	0840D		S13	W33	.583	12382	14.9	30D	-B	3	V	0813	.60	.70		(250)	C
CANR	17	0813	0830	0816	S17	W32	.594	12382	14.9	17	-N		V		1.20				
CRON	17	0813	0829	0816	S15	W34	.607	12382	14.8	16	-N		V	0816	.60				
CATA	17	0815	0835	0815	S14	W34	.601	12382	14.8	20	-N	3	C	0815	.87	1.08		(182)	
ISTA	17	0815	0830		S15	W28	.531	12382	15.2	15	-F								E
ATHN	17	0819E	0823D	0819U	S16	W35	.624	12382	14.7	4D	-N	2	C		.66				DE
TEHR	17	0820E	0834	0821	S14	W30	.550	12382	15.1	14D	-N	3	V		.50				F U
GRP48911	17	1126	1131	1126	S18	W31	.589	12382	15.2	5	--F				.25				3 3 3 8
TEHR	17	1125	1130	1126	S18	W30	.577	12382	15.2	5	-N	3	C		.12				
ATHN	17	1126	1131D	1126	S18	W32	.600	12382	15.1	5D	-F	2	C		.33				DE
MEUD	17	1126	1131	1127	S17	W31	.582	12382	15.2	5	-F		C	1127	.31	.40			D
	17	2100	2127	NO FLARE PATROL															
	17	2138	2155	NO FLARE PATROL															
GRP48912	18	0453	0510	0456	N13	W10	.264	12387	17.5	17	-N				.99				4 4 4 7
MANI	18	0449	0523	0456	N13	W10	.264	12387	17.5	34	-N	2		0456	1.03	1.07			UE
MANI	18	0452	0523	0500	N16	W12	.323	12387	17.3	31	-N	2		0500	.31	.32			
TEHR	18	0453	0509	0456	N12	W10	.251	12387	17.5	16	-N	3	C		.63				F
ATHN	18	0454E	0507	0456	N12	W10	.251	12387	17.5	13D	-N	2	V		.99				F
CRON	18	0454E	0453		N14	W09	.267	12387	17.5	5D	-N		V		1.30				
GRP48913	18	1104	1113	1107	N13	W12	.286	12387	17.6	9	--F				.40				4 4 4 6
UPIC	18	1102	1105		N14	W14	.321	12387	17.4	4	-F		P	1103	.63				
TEHR	18	1102	1115	1107	N12	W12	.275	12387	17.6	13	-N	3	C		.19				F
RAMY	18	1105	1117	1107	N14	W11	.287	12387	17.6	12	-F	3	V		.37				DE
CAPS	18	1105E	1115D		N13	W12	.286	12387	17.6	10D	-N	1	V	1107	.30	.30		(176)	
TEHR	18	1105E	1120	1107	N12	W10	.251	12387	17.7	15D	-N	3	V		.31				F
GRP48915	18	1723	1727	1724	S06	E71	.947	12397	24.0	4	--F				.24				3 3 2 7
HUAN	18	1723	1728	1725	S06	E72	.952	12397	24.1	5	-F	1	C	1725	.21				DT
BOUL	18	1723	1728	1723	S05	E70	.941	12397	24.0	5	-F		V	1723		.70			
PALE	18	1723	1726	1724	S08	E72	.953	12397	24.1	3	-F	3	C		.27				
GRP48919	18	1813	1829	1815	N12	W15	.314	12387	17.6	16	--N				.53				4 4 3 5
PALE	18	1811	1833	1814	N13	W15	.324	12387	17.6	22	-N	3	C		.63				F
HUAN	18	1814	1824	1816	N12	W14	.301	12387	17.7	10	-F	2	C	1816	.15	.16			D
CANR	18	1815E	1823	1815E	N12	W16	.327	12387	17.6	8D	-N		V	1815	.80	.90			
MCMA	18	1815E	1836D		N12	W15	.314	12387	17.6	21D	-N		V						
920 HUAN	18	1925	1947		S05	E90	1.008	12398	25.6	22	--F	1	C	1939	.21				D 4
921 HUAN	18	2107	2121		S05	E88	.999	12398	25.5	14	--F	1	C	2110	.26				D 1
	18	2140	2146	NO FLARE PATROL															
	18	2153	2155	NO FLARE PATROL															
	18	2241	2243	NO FLARE PATROL															
	18	2250	2314	NO FLARE PATROL															
GRP48927	19	1156	1214	1157	S10	E61	.881	12397	24.1	18	--F				.89				2 2 2 7
MEUD	19	1155	1220	1157	S10	E60	.873	12397	24.0	25	-F		C	1157	.72	1.50			H
ZURI	19	1156	1208	1156	S10	E61	.881	12397	24.1	12	-N		C	1156	1.05	2.10			
GRP48931	19	1806	1813	1810	S03	E73	.957	12398	25.2	13	--F				.36				2 2 2 6
CANR	19	1806	1825	1811	S03	E72	.952	12398	25.2	19	-F		V		.40				
HUAN	19	1806	1813	1808	S02	E73	.957	12398	25.2	7	-F	1	C	1808	.31				D

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	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. LONG. DIST.	CENTRAL DISTANCE	MOUNT WILSON PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
GRP48932	19	1823	1851	1830	S03	E73	.957	12398	25.2	28	--N				.32				3 3 3 5
PALE	19	1819	1855	1828U	S04	E73	.957	12398	25.2	36	-N	2	C		.36				F
HUAN	19	1826	1903	1831	S02	E73	.957	12398	25.2	37	-N	1	C	1831	.31				D
RAMY	19	1830E	1834	1830U	S02	E72	.951	12398	25.2	4D	-F	3	V		.28				DE
	19	1923	1947	NO FLARE PATROL															
	19	2043	2054	NO FLARE PATROL															
	19	2122	2123	NO FLARE PATROL															
	19	2133	2214	NO FLARE PATROL															
	19	2220	2233	NO FLARE PATROL															
	19	2238	2312	NO FLARE PATROL															
5 STATIONS REPORTING GROUP 48939. 4 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48939	20	0749	0819	0759	S02	E65	.907	12398	25.2	30	--N				.39				3 3 3 10
ABST	20	0747	0807D	0758	S01	E66	.914	12398	25.3	20D	-F		P	0758	.81	1.80			D
MONT	20	0750	0811	0758	S02	E66	.914	12398	25.3	21	-N		C	0758	.10				DH
TEHR	20	0759E	0826	0802	S02	E64	.899	12398	25.1	27D	-N	4	V		.25				DE
48939	20	0815	0830	0820	S04	E67	.922	12398	25.4	15	*-F				.33				2 2 1 7
WEND	20	0815	0820		S05	E64	.901	12398	25.1	5	-F								
ATHN	20	0819E	0839	0820	S03	E69	.934	12398	25.5	20D	-N	4	V		.33				DE
GRP48942	20	1029	1100	1035	S02	E63	.892	12398	25.2	31	-N				.72				3 3 3 6
MONT	20	1028	1111	1034	S02	E65	.907	12398	25.3	43	-N		C	1034	.52				D
CATA	20	1030	1045	1035	S03	E62	.884	12398	25.1	15	-N	3	C	1035	.58	1.24		(162)	
UPIC	20	1033E	1105U		S02	E63	.892	12398	25.2	32D	1N		P	1033	1.05				K
GRP48944	20	1745	1755	1748	S03	E61	.876	12398	25.3	10	--B				.31				2 2 1 5
PALE	20	1745E	1755	1745U	S05	E61	.877	12398	25.3	10D	-N	4	V		.31				
BOUL	20	1746E	1750D	1750	S01	E60	.866	12398	25.2	4D	-B		V	1750		.50			
GRP48945	20	1813	1834	1816	S03	E58	.850	12398	25.1	21	--F				.24				3 3 2 4
RAMY	20	1811	1839D	1815	S02	E55	.820	12398	24.9	28D	-F	2	C		.28				DE
PALE	20	1814	1829	1816	S06	E59	.861	12398	25.2	15	-F	3	C		.19				
BOUL	20	1814	1818D		S01	E59	.858	12398	25.2	4D	-N		V	1818		.80			
GRP48946	20	1922	1929	1922	N14	W46	.733	12387	17.4	7	--N				.28				2 2 2 3
RAMY	20	1922	1929	1922	N14	W46	.733	12387	17.4	7	-N	2	C		.28				DE
PALE	20	1922	1929	1922	N14	W46	.733	12387	17.4	7	-N	0	C		.28				DE
GRP48947	20	1950	2001	1952	N13	W46	.731	12387	17.4	11	--F				.31				2 2 2 3
RAMY	20	1950E	2000	1952U	N14	W45	.721	12387	17.5	10D	-N	2	V		.31				DE
PALE	20	1952E	2001	1952U	N11	W46	.727	12387	17.4	9D	-F	3	V		.31				
	20	2209	2312	NO FLARE PATROL															
950 PALE	21	0226E	0227D		S18	E73	.963	12402	26.6	1D	-N	2	C						4
GRP48952	21	1206	1216	1212	S06	E48	.749	12398	25.1	10	--N				.37				2 2 2 6
TEHR	21	1206	1216	1212	S06	E49	.761	12398	25.2	10	-N	4	C		.41				DE
ATHN	21	1211E	1216	1211U	S06	E47	.738	12398	25.0	5D	-N	3	C		.33				DE
GRP48953	21	1420	1428	1421	S13	E60	.877	12402	26.1	8	--F				.27				3 3 3 7
ATHN	21	1419	1428	1421	S14	E60	.879	12402	26.1	9	-N	3	C		.33				DE
RAMY	21	1420	1430	1422	S12	E60	.876	12402	26.1	10	-F	3	C		.28				DE
HUAN	21	1420	1425	1421	S12	E61	.884	12402	26.2	5	-F	1	C	1421	.21	.45			D
GRP48954	21	1543	1602	1546	S07	E33	.560	12397	24.1	19	--N				.43				3 3 2 7
HUAN	21	1541	1559	1546	S05	E34	.568	12397	24.2	18	-F	1	C	1546	.36	.44			E
ATHN	21	1544	1601	1546	S07	E30	.518	12397	23.9	17	-N	2	V		.50				F
MCMA	21	1550E	1607D		S08	E34	.577	12397	24.2	17D	-N		V						
GRP48955	21	1546	1602	1548	S12	E58	.859	12402	26.0	16	--N				.46				3 3 2 8
TEHR	21	1546	1559	1548	S12	E55	.832	12402	25.8	13	-N	3	C		.46				DE H
RAMY	21	1546	1559	1548	S12	E55	.832	12402	25.8	13	-N	3	C		.46				DE H
MCMA	21	1550E	1607D		S13	E64	.907	12402	26.5	17D	-N		V						
GRP48958	21	1851	1921	1858	S13	E63	.900	12402	26.5	30	-N				.60				3 3 3 3
PALE	21	1849	1915	1857	S16	E64	.911	12402	26.6	26	-N	3	C		.55				DE
MCMA	21	1850	1925		S13	E64	.907	12402	26.6	35	-N		P	1900	.52	1.40			E
PALE	21	1850E	1910	1856	S15	E65	.916	12402	26.7	20D	-N	3	V		.52				DE
RAMY	21	1853	1922	1859	S11	E60	.875	12402	26.3	29	-N	3	C		.74				DE

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	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP48959	21	1959	2019	2004	S08	E31	.536	12397	24.2	20	--N				.52				3 3 2 3
PALE	21	1959	2012	2002	S08	E30	.522	12397	24.1	13	-N	3	V		.52				DE
MCMA	21	1959	2026D		S08	E34	.577	12397	24.4	27D	-N		V						
KAMY	21	2000E	2020	2005U	S07	E30	.518	12397	24.1	20D	-F	3	V		.52				DE
960 MANI	21	2348E	2353	2348U	S12	E54	.823	12402	26.0	5D	--F	2		2348	.62	1.05			1
	22	0049	0057	NO FLARE PATROL															
	22	0100	0127	NO FLARE PATROL															
	22	0152	0158	NO FLARE PATROL															
GRP48961	22	0208	0218	0212	S06	E42	.678	12398	25.2	10	--F				.24				2 2 2 4
MANI	22	0208	0212D	0210	S06	E42	.678	12398	25.2	4D	-N	2		0210	.31	.42			E
TEHR	22	0209E	0218	0214	S05	E41	.663	12398	25.2	9D	-F	2	V		.17				F
GRP48964	22	0711	0721	0714	S13	E47	.754	12402	25.8	10	--N				.38				3 3 3 5
CATA	22	0710	0720	0715	S13	E50	.786	12402	26.0	10	-N	3	C	0715	.40	.65		(178)	
TEHR	22	0711	0721	0714	S13	E46	.743	12402	25.7	10	-F	4	V		.33				F U
MANI	22	0711	0721	0714	S13	E46	.743	12402	25.7	10	-N	1		0714	.41	.61			H
GRP48966	22	1031	1047	1034	S05	E22	.391	12397	24.1	16	--N				.64				3 3 3 6
TEHR	22	1028	1045	1031	S03	E22	.383	12397	24.1	17	-N		C		.35				
CANR	22	1032	1040D	1036	S06	E21	.381	12397	24.0	8D	-N		V	1036	.90	1.08			
ATHN	22	1032E	1049	1034	S07	E24	.431	12397	24.2	17D	-N	3	V		.66				F
GRP48968	22	1230	1244	1233	S07	E19	.357	12397	23.9	14	--F				.40				3 3 3 6
BOUL	22	1230E	1244	1233U	S08	E20	.378	12397	24.0	14D	-F		V	1233	.50	.50			
RAMY	22	1230	1243	1233	S07	E18	.342	12397	23.9	13	-F	4	C		.28				DE
MCMA	22	1233E	1233D		S07	E18	.342	12397	23.9		-N		P	1233	.41	.48			E
GRP48971	22	1447	1507	1451	S12	W32	.569	12390	20.2	20	--F				.57				4 4 4 7
RAMY	22	1446	1458	1447	S12	W33	.582	12390	20.1	12	-F	3	C		.46				DE
CANR	22	1447	1510	1450	S12	W30	.542	12390	20.4	23	-F		V		1.10				
MCMA	22	1448E	1510		S10	W30	.532	12390	20.4	22D	-F		P	1448	.31	.40			E
BOUL	22	1457E	1510	1457E	S15	W34	.610	12390	20.1	13D	-F		V	1457	.40	.50			
GRP48973	22	1859	1910	1902	S11	E16	.349	12397	24.0	11	--F				.56				2 2 2 4
PALE	22	1858	1905	1902	S13	E14	.347	12397	23.8	7	-F	3	V		.62				F
BOUL	22	1859	1914	1902	S09	E18	.358	12397	24.1	15	-F		V	1902	.50	.50			
GRF48974	22	2018	2033	2019	S12	W34	.595	12390	20.3	23	--F				.36				2 2 2 3
BOUL	22	2018	2030	2019	S13	W33	.587	12390	20.4	20	-F		V	2019	.50	.60			
MCMA	22	2015E	2036D		S10	W35	.599	12390	20.2	21D	-F		P	2016	.21	.30			D
	22	2107	2200	NO FLARE PATROL															
	23	0136	0207	NO FLARE PATROL															
	23	0212	0231	NO FLARE PATROL															
GRP48975	23	0407	0420	0409	S09	E09	.244	12397	23.8	13	--F				.37				4 4 4 6
TEHR	23	0404	0430	0407	S05	E10	.211	12397	23.9	26	-N	3	C		.28				DE
ATHN	23	0407E	0415	0409	S10	E07	.239	12397	23.7	8D	-F	1	V		.33				DE
PALE	23	0407E	0414D	0408U	S10	E07	.239	12397	23.7	7D	-F	2	V		.36				DE
TEHR	23	0407E	0424	0411	S07	E10	.232	12397	23.9	17D	-F	3	V		.25				DE
MANI	23	0408	0421	0410	S08	E11	.256	12397	24.0	13	-N	2		0410	.52	.54			FS
GRP48979	23	1045	1055	1046	S07	E09	.219	12397	24.1	10	--N				.64				5 5 5 6
TEHR	23	1042	1053	1043	S06	E08	.195	12397	24.0	11	-N	3	C		.28				F
CATA	23	1045	1045D	1045	S07	E08	.208	12397	24.0		-N	3	P	1045	.58	.59		(182)	
CANR	23	1045	1053	1048	S06	E07	.184	12397	24.0	8	-F		V	1048	1.00	1.00			
CAPS	23	1046	1057D		S07	E12	.258	12397	24.3	11D	-N	2	V	1050	.70	.70		(196)	
ATHN	23	1046E	1058	1046U	S07	E10	.232	12397	24.2	12D	-N	3	V		.66				F
981 PALE	23	1701E	1704	1702U	S07	E03	.164	12397	23.9	3D	--F	3	V		.31				F 2
983 PALE	23	2035E	2047	2037	S02	E13	.235	12398	24.8	12D	--N	3	C		.45				DE 1
GRP48984	23	2336	2358	2342	S08	E02	.176	12397	24.1	22	-N				1.11				2 2 2 3
MANI	23	2335E	2356D	2341	S08	E01	.173	12397	24.1	21D	-N	2		2341	.62	.63			F
BOUL	23	2336	2358	2342	S08	E02	.176	12397	24.1	22	-N		V	2342	1.60	1.60			
985 BOUL	24	0048	0102	0053	S07	E01	.158	12397	24.1	14	--N		V	0053	.50	.50			2

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
6 STATIONS REPORTING GROUP 48987. 1 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48987	24	0225	0311	0257	S08	W01	.176	12397	24.0	46	-N				1.40				3 3 3 7
KODA	24	0225E	0306	0259	S08	W01	.176	12397	24.0	41D	-B		P	0230	1.93	1.93	2.12		E
MANI	24	0253E	0315	0257	S08	E00	.175	12397	24.1	22D	-N	2		0257	1.03	1.04			F
PALE	24	0255E	0256D	0255U	S08	W01	.176	12397	24.0	1D	-N	2	V		1.24				F
48987	24	0216	0303	0223	S07	W01	.158	12397	24.0	47	*-N				.77				4 3 3 4
TEHR	24	0214E	0311D	0223	S06	W02	.144	12397	23.9	57D	-N		C		.50				
CRON	24	0218	0254		S07	W02	.161	12397	23.9	36	-F		V		1.10				
MITK	24	0218	0259	0235	S08	E02	.178	12397	24.2	41	-F		C	0235	1.86	1.90			E
MANI	24	0222E	0232D	0222U	S08	E00	.175	12397	24.1	10D	-N	2		0222	.72	.73			F
GRP48988	24	0512	0525	0516	S12	W52	.804	12390	20.3	13	--F				.32				2 2 2 5
MANI	24	0510	0530	0515	S12	W52	.804	12390	20.3	20	-F	2		0515	.31	.52			
ATHN	24	0514	0520	0517	S12	W52	.804	12390	20.3	6	-N	4	C		.33				DE
8 STATIONS REPORTING GROUP 48989. 3 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48989	24	0645	0746	0714	S08	W02	.178	12397	24.1	61	-N				1.02				5 5 4 11
ATHN	24	0635E	0736	0714	S07	W04	.172	12397	24.0	61D	-N	3	V		1.16				F
BUCA	24	0655	0751		S08	W02	.178	12397	24.1	56	-F		C	0705	1.10	1.10			
ISTA	24	0700E	0750		S08	W03	.182	12397	24.1	50D	-N								B
CAPS	24	0702E	0705D		S08	W01	.176	12397	24.2	3D	-N	1	S	0703	1.20	1.20		(189)	
CANR	24	0716E	0717D		S08	W02	.178	12397	24.2	1D	-F		V	0717	.60	.60			
48989	24	0650	0741	0655	S08	W04	.188	12397	24.0	51	*-N				1.38				4 4 4 8
ATHN	24	0635E	0736	0655	S07	W04	.172	12397	24.0	61D	-N	3	V		.99				F
MANI	24	0647	0725	0656	S08	W04	.188	12397	24.0	38	-N	2		0656	.83	.84			F
ABST	24	0650	0751	0653	S09	W04	.204	12397	24.0	61	1F		C	0653	2.24	2.20			F
CATA	24	0650	0750	0655	S09	W03	.199	12397	24.1	60	-B	3	C	0655	1.44	1.47		(204)	
ATHN	24	0651	0728	0656	S08	W04	.188	12397	24.0	37	-F	4	C		.99				F
	24	2145	2237	NO FLARE PATROL															
GRP48991	25	0755	0820	0801	S05	W17	.316	12397	24.1	25	--N				.47				7 7 6 13
MONT	25	0753	0818	0802	S05	W18	.331	12397	24.0	25	-N		C	0802	.52				E
CANR	25	0755	0757D		S06	W18	.338	12397	24.0	2D	-F		V	0757	.30	.30			
CATA	25	0755	0625	0800	S04	W18	.326	12397	24.0	30	-N	3	C	0800	.58	.61		(178)	
ISTA	25	0755E	0820		S06	W17	.323	12397	24.1	25D	-F								E
MANI	25	0756	0810D	0759	S04	W14	.264	12397	24.3	14D	-N	1		0759	.52	.54			F
ATHN	25	0800E	0817	0801	S05	W18	.331	12397	24.0	17D	-N	3	V		.66				F
UPIC	25	0801E	0801D		S06	W17	.323	12397	24.1		-F		P	0801	.21				
GRP48992	25	1748	1820	1749	S07	W22	.403	12397	24.1	32	--N				.83				2 2 1 3
PALE	25	1748	1754	1749	S07	W24	.433	12397	23.9	6	-N	3	V		.83				U
MCMA	25	1749E	1845D		S07	W20	.374	12397	24.2	56D	-N		V						
993 BOUL	25	1852E	1857	1852E	S07	W24	.433	12397	24.0	5D	--N		V		.30	.35			3
	25	2148	2154	NO FLARE PATROL															
	25	2156	2210	NO FLARE PATROL															
GRP48994	26	0038	0110	0046	S09	W27	.488	12397	24.0	32	-N				.61				3 3 3 5
MANI	26	0038	0120D	0052	S08	W27	.482	12397	24.0	42D	-N	2		0052	.62	.71			F
CRON	26	0040E	0059	0043	S10	W27	.493	12397	24.0	19D	-N		V		.45				
PALE	26	0043E	0053D	0043U	S09	W27	.488	12397	24.0	10D	-N	3	V		.77				DE
48994	26	0048	0135	0117	S08	W27	.482	12397	24.0	47	*-N				1.98				2 2 2 4
BOUL	26	0048E	0126D	0112	S09	W29	.515	12397	23.9	38D	1N		V		2.40	2.60			
MANI	26	0054E	0135D	0121	S06	W24	.428	12397	24.2	41D	-N	2		0121	1.55	1.71			F
MANI	26	0054E	0135D	0100	S06	W24	.428	12397	24.2	41D	-N	2		0100	.21	.23			F
4 STATIONS REPORTING GROUP 48995. 0 STATIONS OBSERVING AND NOT REPORTING.																			
GRP48995	26	0157	0402	0159	S08	W27	.482	12397	24.1	125	1B				3.35				2 2 2 4
KODA	26	0157E	0402	0200	S08	W26	.468	12397	24.1	125D	1B		P	0205	4.38	4.38	1.92		EK
TEHR	26	0157E	0158	0158U	S08	W28	.496	12397	24.0	1D	1N	2	V		2.32				F
48995	26	0135	0300	0142	S09	W28	.501	12397	24.0	85	*-B				1.73				3 2 2 3
MANI	26	0135E	0300D	0142	S09	W27	.488	12397	24.0	85D	1N	2		0142	1.86	2.12			F
CRON	26	0136E	0259	0142	S09	W28	.501	12397	24.0	83D	-B		V		1.60				
TEHR	26	0216E	0259	0216U	S08	W28	.496	12397	24.0	43D	-N	1	C		1.09				F
GRP48998	26	0829	0843	0832	S05	W18	.332	12398	25.0	14	--F				.63				4 4 4 13
TEHR	26	0825	0839	0831	S06	W19	.353	12398	24.9	14	-N	2	C		.36				F
TEHR	26	0827E	0840	0832U	S06	W19	.353	12398	24.9	13D	-N	3	V		.33				F
UPIC	26	0828	0836	0830	S04	W17	.311	12398	25.1	8	-F		P	0830	1.85				F
ATHN	26	0830	0844	0834	S04	W18	.326	12398	25.0	14	-F	3	C		.50				DE
CANR	26	0830	0850		S04	W15	.280	12398	25.2	20	-F		V	0830	.60	.60			
CANR	26	0844	0900		S08	W22	.410	12398	24.7	16	-B		V		.70	.80			

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP48999	26	0840	0927	0845	S08	W33	.566	12397	23.9	47	-N				1.17				4 4 4 13
ATHN	26	0839	0927	0846	S06	W30	.516	12397	24.1	48	-N	3	C		.99				F
TEHR	26	0839	0921	0845	S09	W31	.543	12397	24.0	42	-N	3	C		.64				F
CAPS	26	0840	0903D		S07	W29	.506	12397	24.2	23D	-B	3	V	0844	.90	1.00		(220)	
TEHR	26	0841	0922	0844	S09	W31	.543	12397	24.0	41	-N	4	V		.99				F
CRON	26	0845E	0854		S08	W42	.684	12397	23.2	9D	-F		V		1.80				
48999	26	0906	0930	0910	S09	W31	.543	12397	24.1	24	*-N				.43				3 3 3 10
TEHR	26	0841	0922	0910	S09	W31	.543	12397	24.0	41	-N	4	V		.41				F
ARCE	26	0905E	0931D		S09	W33	.570	12397	23.9	26D	-N		C	0915	.39	.50			
CAPS	26	0907	0937D		S09	W29	.515	12397	24.2	30D	-B	3	V	0911	.50	.60		(212)	
GRP49004	26	1517	1533	1523	S09	W34	.584	12397	24.1	16	-N				.82				5 5 4 11
CAPS	26	1514E	1543D		S07	W32	.548	12397	24.2	29D	-N	3	V	1517	.80	1.00		(167)	C
UPIC	26	1515	1529	1521	S08	W35	.593	12397	24.0	14	-N		P	1521	1.05				F
ZURI	26	1518	1526	1522	S09	W35	.597	12397	24.0	8	-N		C	1522	.85	1.10			
BOUL	26	1518E	1538D	1523	S10	W36	.614	12397	23.9	20D	-F		V	1523					
RAMY	26	1520	1529D	1525U	S11	W33	.579	12397	24.2	9D	-F	3	C		.56				DE
GRP49005	26	1538	1610	1548	S13	W07	.289	12402	26.1	32	-F				1.50				6 6 5 10
BOUL	26	1535E	1610D	1548U	S12	W09	.290	12402	26.0	35D	-F		V	1548		1.70			
CATA	26	1535	1605	1550	S13	W09	.304	12402	26.0	30	-N	3	C	1550	.58	.60		(162)	
RAMY	26	1539E	1546D	1544U	S12	W09	.290	12402	26.0	7D	-F	3	C		.65				DE
WEND	26	1541	1615	1548	S13	W05	.277	12402	26.3	34	1N		P		5.16				B
CAPS	26	1543E	1558D		S13	W02	.266	12402	26.5	15D	-N	3	V	1546	.80	.80		(161)	C
MCMA	26	1556E	1556D		S12	W05	.261	12402	26.3		-F		P	1556	.31	.30			E
GRP49006	26	1639	1648	1642	S13	W15	.364	12402	25.6	9	-N				.52				4 4 2 9
WEND	26	1636	1648		S13	W14	.353	12402	25.6	12	-B								
UPIC	26	1639	1642	1640	S14	W15	.375	12402	25.6	3	-N		P	1640	.85				E
BOUL	26	1640	1650	1643	S13	W14	.353	12402	25.6	10	-N		V	1643		.40			
RAMY	26	1640	1650	1642	S12	W15	.353	12402	25.6	10	-N	3	C		.19				DE
008 PALE	26	1852	1859	1855	S12	W16	.364	12398	25.6	7	--F	3	C		.36				F 3
	26	1921	1957	NO FLARE PATROL															
	26	1959	2053	NO FLARE PATROL															
010 MANI	26	2340	0012	0002	S12	W17	.377	12402	25.7	32	--N	2		0002	.62	.61			FU 2
GRP49011	27	0535	0601	0544	S12	W22	.441	12402	25.6	26	1N				2.10				5 5 5 6
ATHN	27	0530	0602	0538	S14	W20	.434	12402	25.7	32	-N	3	V		.99				F
TEHR	27	0533	0601	0545	S11	W22	.433	12402	25.6	28	-B	4	V		.55				F Z
WEND	27	0536E	0612		S11	W23	.446	12402	25.5	36D	1N		P		4.13				
TACH	27	0537	0549	0545	S11	W24	.460	12402	25.4	12	1F		C	0545	2.73	3.00	1.72	51	E
UPIC	27	0538	0603	0546	S12	W22	.441	12402	25.6	25	1B		P	0546	2.10				
	27	2136	2139	NO FLARE PATROL															
013 MANI	28	0008E	0015	0008U	S08	W53	.808	12397	24.0	7D	--F	2		0008	.31	.51			3
GRP49016	28	0801	0841	0817	S11	W37	.632	12402	25.6	40	--N				.69				6 5 5 11
MONT	28	0756	0848	0822	S11	W36	.619	12402	25.6	52	-N		C	0822	.21				D
ATHN	28	0757E	0843	0800	S13	W38	.653	12402	25.5	46D	-N	4	V		.66				DE
CANR	28	0806	0846	0814	S12	W37	.636	12402	25.6	40	-F		V		1.20				
ARCE	28	0807E	0840D		S11	W37	.632	12402	25.6	33D	-N		C	0817	.46	.60			
MEUD	28	0809E	0830		S10	W37	.620	12402	25.6	21D	-N		C	0811	.41	.50			
CATA	28	0815E	0840D	0815	S10	W37	.628	12402	25.6	25D	-N	3	P	0815	1.16	1.49		(182)	
GRP49017	28	1523	1545	1528	S08	W62	.889	12397	24.0	22	-N				.87				8 8 7 9
BOUL	28	1521	1551	1526	S08	W62	.889	12397	24.0	30	-N		V	1526		1.68			
RAMY	28	1522	1542	1529	S10	W60	.875	12397	24.1	20	-F	4	C		.46				DE
CAPS	28	1523E	1543D		S08	W60	.873	12397	24.1	20D	-B	3	V	1526	.50	1.00		(246)	
CANR	28	1524	1537	1528	S10	W64	.906	12397	23.8	13	-N		V	1528	.80	1.40			
HUAN	28	1525	1543	1527	S08	W61	.881	12397	24.1	18	-N	1	C	1527	.31	.63			
MCMA	28	1525E	1555D		S07	W63	.896	12397	23.9	30D	-N		P	1525	.26	.60			D
WEND	28	1526E	1544		S07	W62	.888	12397	24.0	18D	1N		P		3.09				
ATHN	28	1530E	1544	1532	S08	W63	.896	12397	23.9	14D	-N	4	V		.66				DE
GRP49018	28	1525	1537	1529	S09	E35	.598	12409	1.3	12	--F				.40				4 4 3 9
RAMY	28	1522	1537	1528	S08	E35	.594	12409	1.3	15	-F	4	C		.28				DE
BOUL	28	1525	1539	1527	S09	E35	.598	12409	1.3	14	-F		V	1527		.48			
CANR	28	1527	1535	1530	S08	E34	.581	12409	1.2	8	-F		V	1530	.60	.60			
ATHN	28	1530E	1536	1530U	S09	E37	.624	12409	1.4	6D	-F	4	V		.33				DE
GRP49021	28	1843	1904	1846	N12	E90	1.000	12417	5.5	21	1B				.46				2 2 1 4
HUAN	28	1841	1852		N11	E90	1.000	12417	5.5	11	-N	1	C	1842	.46				
BOUL	28	1844	1915D	1846U	N12	E90	1.000	12417	5.5	31D	2B		V	1848					

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION — MIN.	IM-POR-TANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
					APPROX.														
	DATE JUN	START	END	MAX. PHASE	LAT.	MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY					TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP49022	28	1903	1909	1906	S06	W66	.917	12397	23.8	6	--F								2 2 8 3
HUAN	28	1901U	1908		S05	W64	.902	12397	24.0	70	-F	1	C						
BOUL	28	1905	1910	1906U	S06	W68	.930	12397	23.7	5	-F		V	1906					
023 HUAN	28	1911	1919	1912	N12	E19	.360	12413	30.2	8	--F	1	C	1912	.26				D 3
	28	1920	1929	NO FLARE PATROL															
	28	1948	1953	NO FLARE PATROL															
	28	2006	2013	NO FLARE PATROL															
	28	2025	2034	NO FLARE PATROL															
	28	2036	2040	NO FLARE PATROL															
024 RAMY	28	2139	2155		S07	E85	.997	12414	5.3	16	--F	3	C						DE 2
GRP49025	28	2321	0003	2323	S14	W44	.727	12402	25.7	42	-B				1.11				2 2 2 3
VORO	28	2321	0003	2322	S15	W45	.741	12402	25.6	42	-B		P	2331	1.38	2.01		64	EL
PALE	28	2322E	2357D	2324U	S13	W43	.712	12402	25.7	350	-N	2	V		.83				F
PALE	28	2322E	2357D	2343U	S13	W43	.712	12402	25.7	350	-N	2	V		1.34				F
026 CRON	29	0039E	0039D		S07	E84	.995	12414	5.3		--N		V	0039	.25				2
027 CRON	29	0145E	0210		S13	W48	.768	12398	25.5	250	-N		V		.90				1
028 PALE	29	0217E	0218D	0217U	S08	E84	.995	12414	5.4	10	--N	2	V		.21				DE 2
029 PALE	29	0217E	0218D	0217U	S12	W45	.732	12402	25.7	10	-N	2	V		1.24				2
GRP49031	29	0554	0608	0558	S07	E76	.980	12414	5.1	14	-N				.76				3 3 3 6
ATHN	29	0552E	0605	0555	S07	E76	.972	12414	4.9	130	-N	3	V		.83				F
BUCA	29	0555	0608		S07	E80	.986	12414	5.2	13	-N		P	0558	.55				D
TACH	29	0555	0612D	0600	S06	E78	.979	12414	5.1	170	1N		C	0600	.91		3.67	80	E
GRP49032	29	0803	0818	0807	S07	E78	.980	12414	5.2	15	-N				.80				5 5 4 6
TEHR	29	0755	0818	0804	S08	E80	.986	12414	5.3	23	-B	3	C		.38				F
TEHR	29	0759E	0818	0810	S06	E78	.979	12414	5.2	190	-B	3	V		.99				F
ISTA	29	0802	0819		S08	E80	.986	12414	5.3	17	-N								
ATHN	29	0804E	0816	0806	S07	E75	.968	12414	5.0	120	-N	4	V		.83				F
CATA	29	0805	0815	0805	S09	E80	.986	12414	5.3	10	1B	3	C	0805	.87			(204)	
CAPS	29	0810E	0822D		S05	E76	.972	12414	5.0	120	-N		V	0811	.50				
GRP49034	29	1201	1259	1204	N11	E86	.997	12417	6.0	58	-N				.31				5 5 4 9
RAMY	29	1154	1253	1201	N12	E88	.999	12417	6.1	59	-N	3	C						DE
ATHN	29	1156	1304	1200	N11	E85	.996	12417	5.9	68	-N	3	C		.33				F
CANR	29	1203E	1250	1205	N13	E85	.995	12417	5.9	470	-N		V		.40				
CAPS	29	1206E	1310D		N10	E83	.992	12417	5.7	640	-B	3	V	1206	.25				
HUAN	29	1206	1211	1206	N11	E87	.998	12417	6.0	5	-F	2	C	1206	.26				D
GRP49035	29	1309	1325	1312	S07	E74	.963	12414	5.1	16	-N				.66				8 8 8 9
RAMY	29	1305	1324	1311	S07	E75	.968	12414	5.2	19	-N	3	C		.74				F
TEHR	29	1307	1345	1310	S08	E78	.980	12414	5.4	38	-N	3	C		.36				DE
CANR	29	1308E	1320	1315	S05	E74	.963	12414	5.1	120	-N		V	1315	.50	1.60			
HUAN	29	1310	1317		S09	E75	.969	12414	5.2	7	-F	1	C	1313	.52				E
CAPS	29	1310E	1327D		S06	E74	.963	12414	5.1	170	-N	3	V	1310	1.94				
MEUD	29	1310	1320	1316	S08	E71	.949	12414	4.9	10	-F		C	1316	.41				E
ATHN	29	1310E	1322	1311	S08	E73	.959	12414	5.0	120	-N	4	V		.33				F
BOUL	29	1311	1324	1311	S08	E72	.954	12414	4.9	13	-N		V	1311	.50	1.50			
GRP49037	29	1330	1352	1336	N09	E83	.992	12417	5.8	22	-N				.31				3 3 3 10
BOUL	29	1330	1345	1336	N09	E85	.996	12417	5.9	15	-F		V	1336	.25	1.60			
CAPS	29	1331E	1354D		N06	E82	.990	12417	5.7	230	-N	3	V	1331	.50				
ATHN	29	1333E	1357	1335	N12	E83	.992	12417	5.8	240	-N	4	V		.17				DE
GRP49036	29	1513	1526	1517	S08	E74	.964	12414	5.2	13	-B				.57				5 5 5 7
RAMY	29	1511	1528	1516	S07	E73	.959	12414	5.1	17	-B	3	C		.74				F
HUAN	29	1511	1524	1516	S09	E74	.964	12414	5.2	13	-N	2	C	1516	.36				
ATHN	29	1513	1527	1517	S10	E74	.965	12414	5.2	14	-B	4	C		.83				F
MEUD	29	1514	1524	1517	S08	E70	.943	12414	4.9	10	-N		C	1517	.72				
BOUL	29	1515	1527	1517	S08	E80	.986	12414	5.6	12	1B		V		.20	.80			
GRP49039	29	1641	1653	1644	N12	E84	.994	12417	6.0	12	--F				.31				4 4 3 6
BOUL	29	1641	1702	1644	N13	E87	.998	12417	6.2	21	-N		V						
HUAN	29	1641	1648	1643	N11	E85	.996	12417	6.1	7	-F	1	C	1643	.31				
RAMY	29	1641	1651	1643	N13	E85	.995	12417	6.1	10	-N	2	V		.21				DE
MEUD	29	1642	1650	1644	N12	E80	.984	12417	5.7	8	-F		C	1644	.41				D

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hg	MAX. INT. %	
GRP49040	29	1306	1917	1912	S08	E71	.949	12414	5.1	11	--N				.27				4 4 3 4
HUAN	29	1902	1916	1911	S09	E73	.960	12414	5.3	14	-N	1	C	1911	.31				
PALE	29	1908	1915	1910	S07	E72	.954	12414	5.2	7	-N	2	C		.36				
BOUL	29	1909	1920	1911	S08	E71	.949	12414	5.1	11	-N		V	1911		.90			
RAMY	29	1915E	1918	1915U	S07	E69	.937	12414	5.0	30	-N	3	V		.15				DE
GRP49041	29	1947	2007	1949	N13	E82	.989	12417	6.0	20	-B				1.03				4 4 3 4
PALE	29	1946	2008D	1950U	N16	E79	.981	12417	5.7	220	1B	2	C		1.63				UDE
RAMY	29	1947	2010	1950U	N11	E80	.984	12417	5.8	23	1B	2	V		.99				U
BOUL	29	1947	2000D	1950	N12	E82	.989	12417	6.0	130	-N		V	1950		2.00			
HUAN	29	1947	2003	1947	N12	E85	.996	12417	6.2	16	-N	2	C	1947	.46				E
044 PALE	29	2249	2258	2251	S09	E68	.932	12414	5.1	9	--F	2	V		.31				DE 2
045 PALE	30	0042E	0045D	0045U	S05	E68	.930	12414	5.1	30	--N	2	C		.36				DE 3
046 CRON	30	0045	0057		N11	E75	.965	12417	5.7	12	-N		V		.60				4
047 MITK	30	0055	0103	0057	S07	E66	.918	12414	5.0	8	-N		C	0057	.52				D 3
GRP49048	30	1516	1546	1518	N13	E70	.939	12417	5.9	30	1N				1.64				9 9 7 9
RAMY	30	1514	1548	1518	N15	E69	.934	12417	5.8	34	-B	2	C		.84				DE
ATHN	30	1515	1547	1517	N13	E70	.939	12417	5.9	32	-B	3	C		.99				F
BOUL	30	1515	1532	1518	N13	E67	.920	12417	5.7	17	1N		V	1518		3.50			
CANR	30	1515	1535	1518	N13	E73	.955	12417	6.1	20	1B		V	1518	.90	2.10			
HUAN	30	1515	1607	1518	N12	E70	.939	12417	5.9	52	-N	2	C	1518	.72				
CAPS	30	1515E	1550D		N11	E72	.950	12417	6.0	350	-B	3	V	1518	1.00			(420)	C
MEUD	30	1516	1536	1518	N13	E70	.939	12417	5.9	20	-N		C	1518	.83				
MCMA	30	1518E	1600D		N13	E70	.939	12417	5.9	420	1B		V						D
WEND	30	1519	1543		N13	E68	.927	12417	5.7	24	2F		P		6.19				
049 BOUL	30	1851	1904	1853	S07	W75	.968	12398	25.2	13	--F		V	1853		.80			2
	30	1906	1911	NO FLARE PATROL															
050 HUAN	30	2020	2028	2025	N10	E78	.939	12417	6.1	8	--F	1	C	2025	.26				2
051 HUAN	30	2044	2059	2047	N13	E68	.927	12417	6.0	15	--F	1	C	2047	.26				2
	30	2126	2159	NO FLARE PATROL															
GRP49052	30	2159	2222	2202	N16	E65	.908	12417	5.8	23	-B				.99				2 2 1 2
BOUL	30	2159	2225D	2201	N15	E64	.900	12417	5.7	260	1N		V	2201		3.40			
PALE	30	2202E	2218	2203U	N16	E66	.915	12417	5.9	160	-B	2	C		.99				DE

In the importance column "--" signifies the subflare has been confirmed by the NOAA grouping program but is not included in the I.A.U. Quarterly Bulletin on Solar Activity. These subflares are also not included in the Flare Index below.

DAILY FLARE INDICES

Date	Flare Index	HR OBS	Date	Flare Index	HR OBS	Date	Flare Index	HR OBS
730601	0.00	23.7	730612	26.01	23.8	730622	0.00	22.4
730602	3.05	24.0	730613	3.19	22.8	730623	6.54	23.2
730603	0.00	21.8	730614	58.93	24.0	730624	15.90	23.1
730604	0.00	23.9	730615	113.64	24.0	730625	0.00	23.7
730605	0.00	23.8	730616	299.81	23.9	730626	85.27	22.5
730606	3.44	22.5	730617	0.00	23.3	730627	23.27	24.0
730607	0.51	24.0	730618	5.20	23.3	730628	11.61	23.4
730608	0.00	23.2	730619	0.00	21.8	730629	29.44	24.0
730609	2.16	24.0	730620	2.80	23.0	730630	22.74	23.4
730610	0.00	23.6	730621	2.74	24.0			

When no Flare Index is given, it is 0 for that day.

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY					TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Hα	MAX. INT. %	
783 MANI	01	0029	0050	0034	S12	W81	.988	12357	25.9	21	-F	1		0034	.52	1.36			3
784 CAPS	01	0802	0835D		N15	W62	.893	12364	27.7	33D	-N	3	V	0815	.60				8
785 CATA	01	1005	1025	1005	N17	W64	.910	12364	27.6	20	-N	3	C	1005	.29	.69		(150)	Z 5
786 TEHR	01	1250	1325	1303	N15	W68	.933	12364	27.4	36	-N	3	V		1.00				F 5
787 ARCE	01	1610E	1622D		N15	W70	.945	12364	27.4	12D	-F		C	1610	.17				4
792 ARCE	05	1200E	1250D		N14	E58	.858	12375	9.9	50D	-F		C	1225	.36	.70			H 9
793 PALE	06	0127E	0146	0129	N13	E43	.702	12375	9.3	19D	-F	3	V		.21				DE 3
794 BOUL	06	1749E	1802	1754	S20	W21	.479	12366	5.2	13D	-F		V	1754					4
799 BOUL	07	1410E	1414	1411	N12	E85	.996	12385	14.0	4D	-F		V	1411					6
801 BOUL	07	1436	1443	1440	N17	E85	.997	12385	14.0	13	-N		V	1440					7
802 BOUL	07	1443	1455	1445	N14	E82	.991	12379	13.8	12	-F		V	1445					6
806 KODA	08	0408E	0415D		N15	E66	.919	12379	13.1	7D	1N		P	0408	4.75	4.75			E 4
GRP48807	08	1451	1501	1453	N16	E62	.892	12379	13.3	10	-F				.27				2 2 2 8
RAMY	08	1450	1501D	1452	N16	E61	.884	12379	13.2	11D	-F	1	C		.33				DE
HUAN	08	1451	1501	1453	N15	E62	.891	12379	13.3	10	-F	1	C	1453	.21	.44			D
812 KODA	09	0614E	0618D		N13	E53	.809	12379	13.2	4D	1N		P	0614	4.39	4.39			E 7
814 BOUL	09	2146	2155D	2150	N17	E43	.713	12379	13.1	9D	-F		V	2150	.20				3
816 BOUL	10	0109E	0117	0112	S17	E48	.770	12380	13.6	8D	-F		V						4
817 ATHN	10	0712	0723	0714	S18	E69	.941	12382	15.5	11	-F	3	C		.33				DE 7
818 CAPE	10	0829E	1000D		N21	E85	.996	12387	16.7	91D	1N		C	0832	1.24				H 6
819 ATHN	10	0857E	1005D	0857U	N10	E90	1.000	12389	17.1	68D	1B	3	C						F 7
819 ATHN	10	0857E	1005D	0950U	N10	E90	1.000	12389	17.1	68D	*1N	3	C						F 8
GRP48821	10	1647	1659	1650	N13	W23	.439	12375	9.0	12	-F				.32				2 2 2 7
RAMY	10	1646	1659	1650	N13	W22	.425	12375	9.0	13	-F	4	C		.37				DE
PALE	10	1647	1651D	1650	N12	W23	.432	12375	9.0	4D	-F	3	C		.27				F
822 HUAN	10	1853	1905		N15	E32	.571	12379	13.2	12	-F	1	C	1857	.21	.26			D 4
826 ATHN	11	0711E	0717D	0713	N18	E88	.999	12387	17.9	6D	-N	4	V						DE 8
827 MONT	11	0751	0805	0758	N14	E86	.998	12387	17.8	14	-F		C	0758	.10				6
830 WEND	12	0449	0513		N12	W45	.720	12375	8.8	24	-N								5
831 WEND	12	0505	0511		N15	W09	.291	12377	11.5	6	-F								6
833 ABST	12	0649E	0659	0650	N11	W45	.718	12375	8.9	10D	-F		P	0650	.81	1.20		76	DJZ 12
834 WEND	12	0717	0741		N12	W45	.720	12375	8.9	24	-N								11
GRP48835	12	0747	0759	0751	N13	E69	.936	12387	17.5	12	-N				.70				2 2 2 10
ABST	12	0744	0759D	0751	N14	E69	.937	12387	17.5	15D	1N		P	0751	.99			71	EJ
MONT	12	0750	0758	0751	N12	E69	.936	12387	17.5	8	-N		C	0751	.41				
GRP48836	12	0821	0848	0834	N13	W47	.745	12375	8.8	27	-N				1.60				3 2 2 10
MONT	12	0821	0846	0834	N14	W46	.736	12375	8.9	25	-N		C	0834	.10				
WEND	12	0821E	0850D		N12	W47	.743	12375	8.8	29D	1N		V		3.09				
CAPS	12	0846E	0915D		N15	W41	.681	12375	9.3	29D	-N	3	V	0850	.50	.70		(170)	
837 CAPS	12	0915E	0933D		N07	E66	.914	12404	17.3	18D	-N	3	V	0918	.60				C 9
839 RAMY	12	1122	1212	1130	N14	E68	.931	12387	17.6	50	-F	3	C		.37				DE 9
840 BOUL	12	1629	1646	1632	N17	E07	.305	12379	13.2	17	-F		V	1632	.40	.40			7
845 KODA	13	0321E	0330D		N12	E58	.854	12387	17.5	9D	1F		P	0321	4.51	4.51			E 6

SOLAR FLARES
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OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH HG	MAX. INT, %	
GRP48846	13	0539	0637	(0625)	N13	E56	.837	12387	17.4	58	-B				1.85				2 2 2 8
WEND	13	0539E	0634D		N13	E59	.863	12387	17.7	55D	1N		V		3.09				
CAPS	13	0622E	0637D		N13	E53	.808	12387	17.2	15D	-B	3	V	0625	.60	1.00		(212)	
GRP48847	13	0644	0701	(0645)	N17	W01	.280	12379	13.2	17	-N				.70				2 2 1 10
CAPS	13	0644E	0658D		N16	E00	.263	12379	13.3	14D	-N	3	V	0645	.70	.70			
WEND	13	0649	0701		N17	W01	.280	12379	13.2	12	-N								
848 ABST	13	0653E	07460	0657	N12	E56	.835	12387	17.5	53D	-F		P	0657	.90	1.70		63	FK 11
849 ABST	13	0704	07460	0728	N15	W58	.857	12375	8.9	42D	1F		P	0728	1.80	3.40		62	F 12
851 BOUL	13	1501	1513	1505	N12	W65	.909	12375	8.8	12	-F		V	1505		1.30			7
GRP48852	13	1501	1519	1506	N13	E53	.808	12387	17.6	18	-F				.21				2 2 1 7
MCMA	13	1500	1524		N12	E53	.806	12387	17.6	24	-F		P	1500	.21	.40			D
BOUL	13	1501	1513	1506	N13	E53	.808	12387	17.6	12	-N		V	1506					
853 BOUL	13	1714	1733	1721	N14	W67	.924	12375	8.7	19	-F		V	1721		1.50			7
GRP48854	13	1717	1733	1720	N14	E53	.810	12387	17.7	16	-F				.26				2 2 1 7
BOUL	13	1717	1733	1720	N15	E53	.811	12387	17.7	16	-N		V	1720		1.00			
MCMA	13	1717	1726D		N12	E53	.806	12387	17.7	9D	-F		P	1726	.26	.40			E
858 GRON	14	0047E	0058		N13	W70	.942	12375	8.8	11D	-F		V	0050	.35				3
859 MANI	14	0140E	0155	0144	N14	W69	.936	12375	8.9	15D	-N	1		0144	.41	.87			4
861 ATHN	14	0442E	0452	0443	N12	E45	.719	12387	17.6	10D	-N	3	V		.50				DE 3
863 ABST	14	0711E	0729D	0716	N14	E50	.779	12387	18.0	18D	-F		P	0716	.90	1.40			DZ 8
864 ABST	14	0749	0800	0751	N13	W73	.958	12375	8.9	11	1N		C	0751	.90				DZ 7
865 ABST	14	0759E	0810D	0802	N15	E39	.656	12387	17.3	11D	-F		P	0802	.90	1.20			DJ 9
GRP48866	14	0819	0855	(0821)	N13	W76	.971	12375	8.6	36	1F				2.14				2 2 2 8
MEUD	14	0818	0838	0818	N13	W73	.958	12375	8.9	20	-F		C	0832	.31				HT
KHAR	14	0820	0912		N13	W78	.979	12375	8.5	52	2N		P	0823	3.97		2.10		BH
867 KHAR	14	0820	0858		N14	E47	.747	12387	17.9	38	2N		P	0823	3.64	5.20	1.80		BHJ 8
GRP48868	14	0856	0918	0858	N13	W74	.962	12375	8.8	14	-N				.38				2 2 2 9
ATHN	14	0855E	0912	0856	N12	W72	.952	12375	9.0	17D	-N	3	V		.66				DE
MONT	14	0856	0907	0900	N14	W76	.971	12375	8.7	11	-N		C	0900	.10				D
GRP48869	14	0910	0937	0911	N15	E48	.760	12387	18.0	27	-F				.21				2 2 1 7
MONT	14	0905	0929	0911	N15	E49	.770	12387	18.1	24	-N		C	0911	.21				D
KHAR	14	0915	0945		N14	E47	.747	12387	17.9	30	1F		P	0920			1.80		HJ
875 BOUL	14	2140	2200	2143	N13	W85	.996	12375	8.5	20	1N		V	2143		2.70			4
876 BOUL	14	2143	2151	2145	N12	E35	.594	12387	17.5	8	-F		V	2145		.30			4
879 PALE	15	0141E	0156		N16	W78	.979	12375	9.2	15D	-N	2	C						4
GRP48880	15	0424	0437	0428	N14	E38	.640	12387	18.0	13	-N				.39				2 2 2 7
PALE	15	0424	0435D	0428	N14	E38	.640	12387	18.0	11D	-N	2	C		.45				F
ATHN	15	0427E	0437	0427U	N14	E38	.640	12387	18.0	10D	-N	3	V		.33				DE
881 ABST	15	0504E	0518	0511	N16	W85	.996	12375	8.8	14D	-F		P	0511	.90				D 8
883 MONT	15	0722	0732	0724	N12	W90	1.000	12375	8.6	10	-N		C	0724	.10				D 9
GRP48884	15	1241	1320	(1247)	S15	W12	.341	12382	14.6	39	-F				1.65				2 2 2 9
MCMA	15	1241E	1248D		S14	W09	.300	12382	14.9	7D	-N		P	1247	.21	.20			E
WEND	15	1242E	1320		S15	W14	.361	12382	14.5	38D	1F		V		3.09				
886 BOUL	15	1938E	1953	1938E	S15	W10	.322	12382	15.1	15D	-F		V						4
GRP48887	15	2140	2155	2145	N18	W90	1.000	12375	9.2	15	-N				.45				2 1 1 6
PALE	15	2140	2155	2145	N18	W90	1.000	12375	9.2	15	-N	3	C		.45				
BOUL	15	2153E	2202D	2159	N13	W90	1.000	12375	9.2	9D	-N		V						
890 BOUL	16	0000	0009	0004	N13	W90	1.000	12375	9.3	9	-F		V						6
GRP48892	16	0811	0826	0811	N11	E20	.378	12387	17.8	15	-F				.10				2 2 1 10
MONT	16	0810	0819	0811	N13	E19	.379	12387	17.6	9	-F		C	0811	.10				
WEND	16	0812	0832		N08	E21	.375	12387	17.9	20	-F								

SOLAR FLARES
Unconfirmed
JUNE 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH H α	MAX. INT. %	
903 BOUL	16	2156	2207	2158	N11	E07	.209	12387	17.4	11	-F		V		.50	.50			3
904 BOUL	16	2216	2240D	2222	S08	E34	.575	12390	19.5	240	-F		V		1.00	1.20			4
905 BOUL	16	2331	2348	2337	N12	E07	.223	12387	17.5	17	-F		V		.40	.40			4
906 PALE	17	0154E	0200D	0155U	S04	E54	.811	12394	21.1	60	-F	2	V		.31				DE 4
907 PALE	17	0324	0348	0325	N12	E07	.222	12387	17.7	24	-F	2	C		.55				DE 4
908 PALE	17	0356E	0409	0359	S12	E35	.605	12390	19.8	130	-F	2	V		.31				DE 4
909 WEND	17	0545	0558		N13	E06	.228	12387	17.7	13	-N								5
GRP48914	18	1246	1253	1248	S03	E90	1.000	12398	25.3	7	-F								2 2 0 8
RAMY	18	1245	1254	1247	S02	E90	1.000	12398	25.3	9	-N	4	V						
HUAN	18	1246	1251	1248	S03	E90	1.000	12398	25.3	5	-F	1	C						
916 PALE	18	1723E	1726	1724	N08	E72	.951	12398	24.1	30	-N	4	V		.21				DE 7
917 PALE	18	1723E	1726	1724	S18	E82	.992	12398	24.9	30	-N	4	V		.21				DE 7
918 BOUL	18	1802	1814	1805	S05	E70	.941	12397	24.0	12	-N		V	1805		.70			5
922 MANI	19	0047E	0110	0049U	N15	W22	.432	12387	17.4	230	-N	2		0049	.83	.90			U 3
923 CAPS	19	0602E	0630D		S07	E65	.909	12397	24.1	280	1N	3	S					(152)	B 9
924 CATA	19	0630	0715	0635	N15	W21	.413	12387	17.7	45	-F	3	C	0635	.29	.31		(145)	9
925 ABST	19	0747	0845D	0754	S09	E65	.911	12397	24.2	580	1F		P	0754	1.53	3.40			EJ 9
GRP48926	19	0811	0833	0819	S02	E81	.988	12398	25.4	22	-N				.62				2 2 2 9
ABST	19	0803	0835	0817	S02	E83	.993	12398	25.6	33	1N		C	0817	.90				D
ATHN	19	0818	0830	0821	S01	E79	.982	12398	25.3	12	-N	3	C		.33				DE
928 BOUL	19	1415E	1455D	1416	S05	E59	.860	12397	24.0	400	-F		V						9
GRP48929	19	1736	1750	1738	S03	E76	.971	12398	25.4	14	-F				.31				2 2 1 8
HUAN	19	1736	1745	1738	S02	E74	.962	12398	25.3	9	-F	1	C	1738	.31				D
MCMA	19	1738E	1754D		S04	E77	.975	12398	25.5	160	-F		V						
930 CANR	19	1754	1830	1759	N10	W30	.515	12387	17.5	36	-F		V		.20				7
933 CANR	19	1828	1845	1832	N18	E72	.953	12403	25.2	17	-F		V		.70				5
934 KODA	20	0523E	0523D		S10	E50	.778	12397	24.0		1N		P	0523	5.05	5.06			E 7
935 KODA	20	0523E	0523D		S05	E66	.915	12398	25.2		1N		P	0523	5.05	5.06			E 7
936 ATHN	20	0543E	0600	0545	S10	E80	.986	12402	26.2	170	-F	4	V		.17				DE 7
937 ATHN	20	0632E	0700	0634	S05	E70	.941	12398	25.5	280	-F	4	V		.50				F 9
938 ABST	20	0741	0807D	0752	S06	E52	.793	12397	24.2	260	-F		P	0752	.90	1.80			DKZ 9
940 CANR	20	0842	0850		S06	E63	.894	12398	25.1	8	-N		V	0843	.20	.40			9
GRP48941	20	0900	0916	0902	S03	E65	.907	12398	25.3	16	-F				.38				2 2 2 9
ATHN	20	0900E	0916	0902	S03	E67	.921	12398	25.4	160	-N	4	V		.33				DE
UPIC	20	0901E	0908U		S02	E63	.892	12398	25.1	70	-F		P	0901	.42				
943 RAMY	20	1237	1254	1242	S01	E62	.883	12398	25.2	17	-F	1	C		.19				DE 8
948 BOUL	20	2004E	2022D	2022	N10	W41	.664	12387	17.8	180	-F		V			.60			4
949 HUAN	20	2042E	2048D		N11	W46	.727	12387	17.4	60	-F	1	P						4
951 ATHN	21	0810	0819	0812	S04	E49	.758	12398	25.0	9	-F	3	C		.33				DE 5
956 HUAN	21	1637	1643	1639	S12	E65	.913	12402	26.6	6	-F	1	C	1639	.21				D 7
957 BOUL	21	1652E	1701	1652E	N21	W80	.985	12389	15.7	90	-F		V		.40	1.30			7
962 KODA	22	0225E	0229D		S08	E28	.494	12397	24.2	40	-N		P	0229	1.03	1.04			E 4
963 MANI	22	0600	0625	0602	S06	E25	.441	12397	24.1	25	-N	2		0602	.31	.34			5

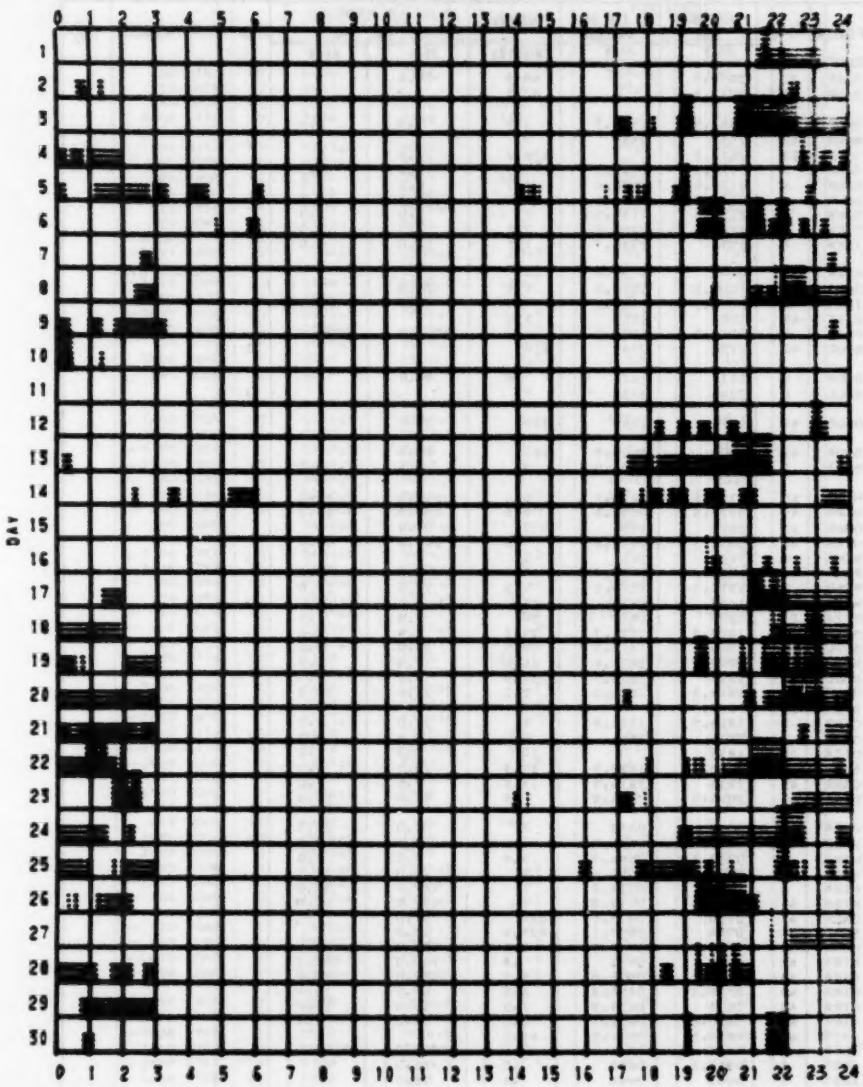
SOLAR FLARES
Unconfirmed
JUNE 1973

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS. COND.	OBS. TYPE	MEASUREMENTS					REMARKS
	DATE JUN	START	END	MAX. PHASE	APPROX. LAT.	APPROX. LONG. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY					TIME — UT	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH °	MAX. INT. %	
GRP48965	22	0728	0740	0731	S13	E48	.765	12402	25.9	12	-F				.19				2 2 2 6
MANI	22	0728	0740	0730	S13	E49	.775	12402	26.0	12	-N	2		0730	.21	.32			
TEHR	22	0728	0740	0731	S13	E46	.743	12402	25.8	12	-F	4	V		.17				F U
967 MEUD	22	1132	11350	1133	S08	E18	.350	12397	23.9	30	-F		C	1133	.52	.50			DH 7
969 HUAN	22	1322	1328	1325	S09	E17	.344	12397	23.8	6	-F	1	C	1325	.31	.33			6
970 MEUD	22	1345	1348D		S12	W30	.542	12390	20.3	30	-F		C	1348	.52	.60			7
972 RAMY	22	1452	1502	1455	S09	E15	.317	12397	23.7	10	-F	3	C		.37				DE 5
976 TEHR	23	0712	0722	0717	S02	E23	.396	12398	25.0	10	-F	2	C		.26				F 8
977 CATA	23	0725E	0730D	0725	S04	E24	.418	12398	25.1	50	-F	3	P	0725	.29	.31		(148)	9
978 MEUD	23	0946E	0949		S07	E08	.208	12397	24.0	30	-N		C	0946	.72	.70			E 7
980 BOUL	23	1558	1608	1600	S09	E08	.234	12397	24.3	10	-F		V	1600	.30	.30			6
982 BOUL	23	1728	1744	1733	S14	E34	.606	12402	26.3	16	-F		V			1.80			3
986 BOUL	24	0157	0203	0202	S07	W01	.158	12397	24.0	6	-N		V	0202	.40	.40			5
990 ATHN	24	1222	1246	1227	S15	E23	.476	12402	26.2	24	-N	4	C		.50				DE 7
996 ATHN	26	0756	0815	0758	S15	W80	.988	12390	20.3	19	-F	3	C		.33				DE 15
997 UPIC	26	0759	0807	0801U	S15	E01	.298	12402	26.4	8	-F		P	0801	.42				14
000 CANR	26	0909	0920	0910	S10	W23	.438	12398	24.7	11	-N		V		.40	.50			10
GRP49001	26	1133	1143	1137	S09	W32	.557	12397	24.1	10	-F				.29				2 2 2 9
TEHR	26	1133E	1142	1137	S09	W31	.543	12397	24.2	90	-N	3	V		.25				DE
ATHN	26	1134E	1143	1136	S08	W32	.552	12397	24.1	90	-F	3	V		.33				DE
002 BOUL	26	1252E	1330D	1300U	S12	W12	.319	12402	25.6	380	-F		V	1300		2.60			10
GRP49003	26	1456	1520	(1457)	S11	W13	.318	12402	25.6	24	-F				.42				2 2 1 11
WEND	26	1456	1516		S11	W13	.318	12402	25.6	20	-N								
UPIC	26	1457E	1524		S11	W13	.318	12402	25.6	270	-F		P	1457	.42				E
007 BOUL	26	1652	1703	1654	S09	W36	.610	12397	24.0	11	-F		V	1654		.20			11
009 MANI	26	2220E	2224	2220U	S03	W26	.447	12398	25.0	40	-F	1		2220	.21	.23			3
012 BOUL	27	1723E	1738	1723U	S15	W21	.456	12402	26.1	150	-F		V		.70	.80			5
014 MONT	28	0748E	1030D	0827	S07	E86	.998	12414	4.8	1620	-N		C	0827	.21				K 11
4 STATIONS REPORTING GROUP 49015. 7 STATIONS OBSERVING AND NOT REPORTING.																			
GRP49015	28	0810	0902	(0825)	S13	W35	.616	12402	25.7	52	-N				.87				2 2 2 11
CAPF	28	0810E	0854		S13	W37	.641	12402	25.6	440	-N		P	0820	1.24	1.56			
CAPS	28	0816E	0909		S12	W33	.586	12402	25.9	530	-N	3	V	0830	.50	.60		(193)	
49015	28	0758	0822	0808	S13	W37	.641	12402	25.6	24	*-F				.33				2 2 1 9
TEHR	28	0755	0831	0808	S13	W37	.641	12402	25.6	36	-N	3	C		.21				DE R
ISTA	28	0800	0820		S13	W36	.629	12402	25.6	20	-F								D
TEHR	28	0802E	0824	0808	S13	W37	.641	12402	25.6	220	-N	3	V		.33				DE R
019 HUAN	28	1558	1615	1600	S08	W63	.896	12397	23.9	17	-F	1	C						8
020 WEND	28	1746	1802D		S04	W67	.922	12397	23.7	160	1N		V		3.09				4
030 PALE	29	0324E	0336	0326	N10	E90	1.000	12417	5.9	120	-N	3	V		.26				DE 3
033 CAPS	29	1024E	1032D		S06	E75	.968	12414	5.1	80	-N	3	V	1024	.50				9
036 HUAN	29	1313	1337		S14	E79	.985	12414	5.5	24	-F	1	C						9
042 HUAN	29	2116	2126	2120	S08	E70	.943	12414	5.1	10	-F	1	C	2120	.31				5
043 PALE	29	2131	2144	2134U	S05	E68	.930	12414	5.0	13	-F	1	C		.36				F 4

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

JUNE 1973



Observatories included in total patrol:

Abastumani	Capri-F (German)	Gran Canaria	Kiev	Meudon	Tachkent
Arcetri	Capri-S (Swedish)	Herstmonceux	Kodaikanal	Mitaka	Tehran
Athenes	Carnarvon	Huancayo	Locarno	Monte Mario	Upice
Boulder	Catania	Istanboul	Manila	Palehua	Voroshilov
Bucharest	Culgoora	Kharkov	McMath-Hulbert	Ramey	Wendelstein
					Zürich

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JUNE 1973

JUN. 1973	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	7000	SAOP	32	1659.5		43.4	-10.6			
	7000	SAOP	40	1742.9		37.1	5.2			
2	7000	SAOR	2	1447.9	1448.5	1.4	5.3	2.6		
	18	MCMA	42	1551	1559	9			1	
	7000	SAOP	22	1618.2		104.2	10.6			
	606	SGMR	2	2126.5	2127.2	3.5	6.6	1.5		
	410	SGMR	6	2126.5	2126.6	3.7	6.2	1.5		
	245	SGMR	6	2126.5	2126.6	3.7	73.8	18.0		
	3750	TYKW	1	2153.5	2154.3	2	3.0	1.0		
	3750	TYKW	1	2159.5	2200.5	2.5	2.0	1.0		
	9400	TYKW	3	2336	2336.7	1.5	12.0	4.0		
3	9285	ARCE	20	0744	0754.6	23				RECORD DIST
	260	ONDR	45	1006.5	1008.5	3.5	20.0			
	210	IZMI	6	1008.3	1008.6	.7	52.0	25.0		
	29	UPIC	45	1008	1009	1.5				
	23	POTS	5	1008.6	1008.7	.8	10000.0	3000.0		
	245	BOUL	42	2230	2347	115			1	
4	808	ONDR	5	1410	1410	.5	90.0			
	18	BOUL	6	2241	2248	7			3	
7	260	ONDR	41	1120	1344	180	30.0			
8	260	ONDR	41	0800	1028.5	460	20.0			
	2800	OTTA	1	2303	2304.5	3	1.4	0.7		
9	200	HIRA	45	0128.5	0133.2	6	140.0	30.0		
	200	HIRA	45	0537.5	0538.5	1.5	150.0	60.0		
	260	ONDR	41	0550	1134	570	30.0			
	200	HIRA	45	0851.3	0851.6	.8	100.0	30.0		
	18	MCMA	6	1111	1114	3			1	
	2700	PENN	1	1315.1	1315.7	1.8	4.6	1.2		
	960	PENN	3	1315.3	1316.1	1.5	51.8	13.8		
	18	MCMA	42	1632	1636	13			2	
	2800	OTTA	21	1806	1811	50	3.0	1.5		
	2695	SGMR	22	1808.8	1815.7	33.1	9.4	2.4		
	4995	BOUL	45	1809.5	1815.5	10.5	15.0	4.0		
	4995	SGMR	22	1809.3	1816.4	28.4	11.9	3.0		
	2695	BOUL	45	1809	1816.5	11.5	8.0	3.0		
	7000	SAOP	4	1814.5	1816.1	2.2	21.6	10.8		
	7000	SAOP	29	1816.7		7				
	4995	CANR	3	1814.5	1815.5	4	12.0	4.0		
	2800	OTTA	1	1814	1816	5	6.6	3.0		
	2800	OTTA	29	1819		10	2.0	1.0		
	8800	SGMR	22	1815.1	1822.5	17.9	18.1	4.5		
	2695	CANR	45	1815	1816.5	13.5	7.0	2.0		
	100	HIRA	45	2004.5	2004.8	.5	80.0	40.0		
10	100	HIRA	45	0012	0013	2	80.0	30.0		
	606	MANI	4	0051.5	0054.8	5.5	17.4	6.2		
	1415	MANI	2	0052.1	0054.7	5.9	5.1	2.0		
	100	HIRA	45	0054	0054.4	2	90.0	25.0		
	100	HIRA	5	0324	0324.3	1	160.0	50.0		
	100	HIRA	45	0419.5	0419.8	1	150.0	60.0		
	260	ONDR	41	0510	0923.5	640	65.0			
	245	SGMR	44	0944	1837.1	829.4	24.2			
	100	HIRA	45	0512.5	0513.2	2.5	170.0	40.0		
	200	HIRA	45	0513	0513	.8	160.0	100.0		
	200	HIRA	45	0556.5	0556.8	1.2	580.0	70.0		
	100	HIRA	45	0556.5	0556.8	2.5	60.0	10.0		
	100	HIRA	45	0615	0615.9	1.5	85.0	15.0		
	100	HIRA	45	0620.6	0621.5	1.5	70.0	20.0		
	29	UPIC	45	0839.5	0849.5	48.5				
	23	POTS	45	0848	0849.1	2.5	40000.0	4000.0		
	221	ABST	1	0853.8	0854	.5	26.0			
	221	ABST	1	0943	0944	.5	26.0			
	29	UPIC	45	0948.5	0949	1				
	23	POTS	45	0948.6	0949.1	1	2000.0	300.0		
	221	ABST	3	0949	0949.2	.7	19.0	5.0		
	29	UPIC	45	1114	1114.5	1.5				
	225	HARS	45	1120	1120.5	1.5	40.0	12.0		
	210	IZMI	6	1120	1020.5	1	140.0	70.0		
	18	MCMA	6	1411	1413	3			1	
	18	MCMA	42	1604	1624	37			1	
	18	MCMA	41	1743	1745	6			1	
	2800	OTTA	20	2055	2100	35	1.6	0.8		
11	260	ONDR	44	0510	0642	680	100.0			
	245	SGMR	44	0910 E	1055.1	656 D	13.2			
	234	POTS	45	0641.9	0642.2	.5	250.0	25.0		
	200	HIRA	45	0641.9	0642.3	.8	150.0	60.0		
	200	GORK	6	0641.9	0642.2	.7	300.0	150.0		
	225	HARS	45	0642	0642.5	1.5	90.0	20.0		
	650	GORK	1	0713.8	0713.8	.3	3.7	1.8		
12	100	HIRA	45	0553	0610	54	1000.0	100.0		
	536	ONDR	45	0750	0751	2	45.0			
	260	ONDR	44	0750	0751	490	45.0			

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	100	HIRA	45	0900	0901	.5D	350.0U	100.0U		
	315	DWIN	43	1445		50	30.0	4.0		
	245	BOUL	42	1910	2105	298			2	
	2800	OTTA	20	2200	2340	180	2.2	1.1		
13	100	HIRA	45	0227.4	0227.7	1	95.0	25.0		
	200	GORK	6	0311.2	0311.4	.6	90.0	30.0		
	260	ONDR	41	0500	0522	590	40.0			
	315	DWIN	45	1429	1429.5	1	8.0	3.0		
	315	DWIN	45	1444	1444.5	1	25.0	10.0		
	18	HCMA	6	1455	1456	2			1	
	2800	OTTA	21	1750	1810	60	3.2	1.6		
	2695	SGMR	20	1754.2	1805.9	29.8	5.7	1.5		
	4995	SGMR	20	1755.6	1806	38.2	5.2	1.4		
	1415	SGMR	20	1756	1808.8	34	2.4	.8		
	2800	OTTA	1	1804.5	1806	3	3.2	1.6		
	2695	BOUL	45	1804.5	1806.5	7.5	4.0	1.0		
	2695	CANR	3	1805.5	1806.5	3.5	4.0	1.0		
	29	UPIC	45	1838.5	1839.5	1.5				
	1420	CANR	3	1900	1902	3.5	3.0	1.0		
	245	BOUL	42	2024 E	2232	230 D			2	
14	1000	TYKW	45	0136.3	0137.6	2	41.0	6.0		
	1000	TYKW	45	0358.5	0359.8	6	475.0	45.0		
	2000	TYKW	1	0402	0402.6	1	2.0	0.4		
	3750	TYKW	1	0440.5	0441	1	3.0	1.0		
	1000	TYKW	45	0440.8	0442	2	7.0	2.0		
	200	HIRA	45	0440.5	0440.8	1	100.0	20.0		
	200	GORK	6	0440.9	0441.1	.7	130.0D			
	100	GORK	41	0440.6	0441.3	1.9	10.0D			
	100	GORK		0440.6	0442.3		10.0			
	100	HIRA	5	0441	0441.4	1	130.0	40.0		
	3750	TYKW	1	0454.5	0454.9	1.5	2.0	1.0		
	2000	TYKW	45	0454	0454.8	2	2.0	0.6		
	100	HIRA	45	0456.4	0457.2	1.6	150.0	60.0		
	100	HIRA	41	0652.5	0657.8	10	140.0			
	23	POTS	45	1044.6	1045.9	3.2	25000.0	4000.0		
	100	GORK	6	1045.5	1045.6	.8	10.0D			
	29	UPIC	45	1045.5	1046.5	2.5				
	2800	OTTA	20	1100	1330	200	2.0	1.0		
	7000	SAOP	22	1300.9		73	13.5			
	7000	SAOP	2	1435	1435.4	1.1	7.1	3.5		
	9285	ARCE	1	1548.9	1549.4	1.4				
	2830	ARCE	1	1549.1	1549.4	.7				
	2800	OTTA	21	1608	1635	60	2.4	1.2		
	2800	OTTA	40	1612	1619.8	18	20.0			
	1420	BOUL	3	1615.5	1617	2.5	2.0	1.0		
	930	BORD	41	1615	1616.8	3	13.0	2.0		
	1420	BOUL	3	1626.5	1629	3	2.0	1.0		
	930	BORD	45	1626	1626.7	2	9.0	2.0		
	245	BOUL	42	1657	1745	148			2	
	2695	BOUL	45	1816.5	1820	5	6.0	2.0		
	2695	BOUL	3	1828.5	1829	2	5.0	2.0		
	245	SGMR	6	1901.6	1903.8	4.6	14.1	3.0		
	1415	SGMR	2	1902.7	1903.1	1.6	5.1	1.5		
	606	SGMR	2	1902.2	1903.1	3.1	5.8	1.5		
	410	SGMR	6	1902.2	1903	2.4	1.7	.5		
	410	SGMR	6	1915.9	1916.2	.7	2.2	1.0		
	245	SGMR	6	1915.7	1916.2	1.8	6.8	2.0		
	1415	SGMR	1	1916.2	1916.3	.8	1.5	.5		
	606	SGMR	1	1916.1	1916.2	.2	4.3	1.5		
15	3750	TYKW	20	0025	0026.8	17	2.0	1.0		
	2695	BOUL	3	0026.5	0027.5	1.5	3.0	1.0		
	2000	TYKW	1	0026	0026.8	8	1.0	0.4		
	2000	TYKW	1	0300	0300.3	1	1.3	0.4		
	1000	TYKW	1	0300	0300.3	1.5	2.5	0.8		
	1000	TYKW	20	0322	0335	30	1.7	0.9		
	2000	TYKW	20	0327	0332	15	3.0	1.0		
	18	HCMA	6	1313	1315	2			1	
	1415	ATHN	22	1403.6	1411.1	11.8	11.2	2.8		
	4995	ATHN	20	1404 U	1414.7	35 U	18.2	8.6U		
	2800	OTTA	21	1405	1420	95	7.8	3.4		
	2700	PENN	20	1406.6	1420.2	59.6	14.5	7.0		
	1500	BERL	46	1406	1411	14	8.8	1.8		
	10700	PENN	20	1407.6	1420.6	39.9	25.6	15.0		
	9285	ARCE	20	1407.5	1417	87				INTERFERENCES
	3000	BERL	21	1407	1410.5	43	20.0			
	2830	ARCE	21	1407.4	1414.8	53.5				INTERFERENCES
	2695	ATHN	22	1407	1411.1	48.1	16.3	5.9		
	2695	SGMR	23	1407.1	1415.5	38.6	6.4	2.1		
	410	SGMR	6	1407.1	1409.6	6.4	27.7	8.4		
	315	DWIN	45	1407	1409	3	45.0	5.0		
	260	ONDR	45	1407.5	1409.5	5	20.0			
	245	SGMR	6	1407.9	1409.7	2.5	8.0	2.0		
	9500	BERL	20	1408	1421.3	52	19.0			
	9400	HUAN	20	1408.1	1417.7	38.6	18.6	7.3		
	7000	SAOP	21	1408.1	1410.8	45.5	41.5			
	7000	SAOP	20	1408.1		45.5	41.5			
	4995	CANR	21	1408.5	1410.5	45.5	17.0	4.0		

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	4995	BOUL	21	1408	1410.5	24.5	27.0	6.0		
	4995	SGMR	23	1408	1413.6	47.2	12.0	4.0		
	2700	PENN	45	1408.9	1410.6	2.3	21.1	11.3		
	2695	BOUL	45	1408.5	1411	25	17.0	4.0		
	1420	CANR	45	1408.5	1411	4	8.0	2.0		
	1420	BOUL	45	1408.5	1411	3.5	7.0	2.0		
	1415	SGMR	2	1408.8	1411.1	4.7	9.0	2.5		
	960	PENN	1	1408.6	1409.7	5.8	6.7	2.5		
	808	ONDR	45	1408.5	1409.5	2	60.0			
	536	ONDR	45	1408.5	1409.5	2	40.0			
	283	DWIN	45	1408	1409	2	30.0	5.0		
	15400	SGMR	22	1409.3	1418.3	28	16.8	5.4		
	8800	ATHN	20	1409	1419.6	25.2	22.1	8.5		
	8800	SGMR	20	1409.6	1416	42.5	22.0	7.0		
	4995	SGMR	4	1409.1	1410.6	1.9	18.1	4.0		
	2830	ARCE	45	1409.2	1411	2.6				
	2830	ARCE	45	1409.2	1410.3	1.5				
	2830	ARCE	45	1410.7	1411.1	1.1				
	2800	OTTA	46	1409	1410.5	2	14.0	7.0		
	2695	CANR	45	1409	1411.5	3.5	17.0	5.0		
	2695	SGMR	4	1409.1	1410.5	1.8	12.5	2.4		
	606	SGMR	1	1409.2	1409.3	1.8	7.6	2.0		
	7000	SAOP	8	1410.6	1410.8	.8	13.8	6.9		
16	100	HIRA	45	0010.5	0013.2	3.5	200.0	40.0		
	950	GORK	1	0818.4	0819.1	3.3	2.6	1.3		
	234	POTS	5	1159.9	1159.9	.1	700.0	250.0		
	2800	OTTA	27	1400 U		600 U	2.6			
	2695	PENT	25	1400 U		50 D	2.6			
	2695	CANR	3	1402	1405.5	6.5	3.0	1.0		
	315	DWIN	8	1403	1404	2	20.0	10.0		
	9400	HUAN	1	1413.1	1414.3	2.8	21.8	7.8		
	2695	SGMR	23	1417.6	1431.3	71.9	25.1	12.0		
	1415	SGMR	23	1417.9	1430.5	56.2	12.2	6.0		
	1420	CANR	45	1418.5	1425.5	23.5	175.0	37.0		
	3000	BERL	46	1419.5	1424.9	41	70.0			
	2695	BOUL	45	1419.5	1425	34	64.0	12.0		
	2695	SGMR	4	1419.9	1424.4	7.5	72.0	15.0		
	1500	BERL	46	1419.5	1426.6	41	180.0			
	1420	BOUL	45	1419.5	1426	20	79.0	15.0		
	18	HOMA	6	1419	1423	6			2	
	4995	SGMR	21	1420.1	1431.4	69	21.1	10.0		
	2830	ARCE	23	1420.2	1431.3	113				
	2800	OTTA	25	1420 E		50 D	2.6			
	2800	OTTA	46	1420 E	1424.3	20 D	75.0			
	2800	OTTA	29	1440		40	8.2	3.8		
	2695	ATHN	4	1420.8	1424.6	39.5	71.5	23.4		
	2695	CANR	45	1420	1424	51.5	83.0	20.0		
	1415	ATHN	4	1420.2	1424.3	18	211.0	65.7		
	1415	SGMR	4	1420.5	1424.2	7.5	214.0	40.0		
	930	BORD	45	1420	1424	9	140.0	18.0		
	808	ONDR	45	1420	1424	10	150.0			
	606	SGMR	21	1420	1431.8	58	6.0	2.5		
	315	DWIN	45	1420	1523	5	40.0D			
	15400	SGMR	20	1421.8	1429.2	37.8	25.2	12.0		
	9500	BERL	21	1421	1424	35	25.0			
	9400	HUAN	21	1421.2	1431.3	50.8	26.8	10.3		
	4995	BOUL	45	1421	1424	12.5	42.0	11.0		
	606	SGMR	46	1421.5	1422.6	6	246.0	50.0		
	606	SGMR	46		1423.3		121.0			
	536	ONDR	45	1421.5	1423	8.5	165.0			
	510	POTS	45	1421.5	1422.7	5	140.0	15.0		
	410	SGMR	6	1421.5	1423.3	7.8	156.0	30.0		
	260	ONDR	45	1421	1423	6	210.0			
	245	SGMR	48	1421.6	1423.7	6.1	530.0	65.0		
	29	UPIC	45	1421.5	1423	18.5				
	9285	ARCE	21	1422	1432.2	87				
	8800	ATHN	4	1422.7	1424.7	3.6	28.1	10.1		
	8800	SGMR	23	1422.2	1433.1	47.5	28.9	13.0		
	4995	ATHN	4	1422.3	1424.7	4 U	30.3	9.8U		
	4995	CANR	21	1422.5	1424.5	33	29.0	5.0		
	4995	SGMR	4	1422.9	1424.4	4.7	34.8	7.0		
	2830	ARCE	4	1422.8	1424.4	3.4				
	234	POTS	45	1422.3	1423.8	1.7	350.0	15.0		
	9285	ARCE	4	1423.3	1424.8	3.5				
	8800	SGMR	4	1423.1	1424.5	3.1	21.1	4.0		
	7000	SAOP	23	1423.1	1424.7	48.4	58.9			
	7000	SAOP	22	1423.1		48.4	34.7			
	7000	SAOP	4	1423.5	1424.7	1.8	38.1	17.3		
	2800	OTTA	21	1530	1600	55	1.4	0.7		
	4995	SGMR	20	1536.3	1539.5	10.4	4.0	2.0		
	8800	SGMR	1	1537.8	1544.4	8.2	3.9	1.5		
	1420	CANR	3	1537.5	1539.5	6	11.0	4.0		
	1420	BOUL	3	1537.5	1540	5	10.0	3.0		
	2830	ARCE	1	1538.6	1539.5	4				
	2800	OTTA	1	1538	1539.5	4	3.4	1.7		
	2800	OTTA	29	1542		10	1.8	0.9		
	2695	ATHN	1	1538.8	1539.5	4.8	5.2	1.7		
	2695	CANR	3	1538.5	1539.5	8.5	8.0	3.0		
	2695	BOUL	3	1538.5	1540	7.5	7.0	2.0		

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	2695 SGMR	1	1538.4	1539.5	5.6	5.6	2.0		
	1415 ATHN	3	1538.5	1539.5	2.6	11.1	3.7		
	1415 SGMR	3	1538.1	1539.5	5.2	12.2	4.0		
	606 SGMR	1	1538.6	1539.5	1	5.4	2.0		
	245 SGMR	6	1538.3	1539.3	1.9	5.1	2.0		
	410 SGMR	6	1539.1	1539.4	1.5	2.1	1.0		
	315 DWIN	45	1625	1725.5	1	40.0	15.0		
	7000 SAOP	4	1729.2	1729.5	1.7	24.3	11.8		
	410 SGMR	6	1944.7	1946.4	2.9	2.1	1.2		
	245 SGMR	6	1944.5	1946.4	3.1	15.2	7.8		
	18 MCMA	6	1944	1946	3			1	
	100 HIRA	45	1945.5	1945.7	1.5	95.0	25.0		
	410 SGMR	6	2155	2156.8	2.6	14.3	5.7		
	245 SGMR	6	2155	2155.4	2.6	143.8	57.5		
	208 VORO	44	2155	2156	3	68.0			
	100 HIRA	45	2155	2156.1	3	140.0	20.0		
	2695 PENT	26	2340		50	1.7			
17	260 ONDR	41	0820	1336	340	40.0			
	1420 BOUL	3	2322.5	2323	1	2.0	1.0		
	1415 MANI	1	2322	2323.1	2.1	2.2	1.1		
	245 SGMR	6	2322.1	2323.8	2.2	8.8	3.8		
	100 HIRA	45	2323	2323.4	1	90.0	40.0		
18	3750 TYKW	20	0445	0500	45	2.0	1.0		
	260 ONDR	41	0550	0911.5	400	45.0			
	100 GORK	6	0755.3	0755.6	1.2	70.0	10.0		
	200 HIRA	45	0756	0756.3	.5	100.0	30.0		
	18 MCMA	6	1127	1129	3			1	
	315 DWIN	45	1336		2	40.0D			
	225 HARS	5	1722.5	1723.5	2	75.0	30.0		
	2800 OTTA	20	1810	1812.5	30	1.8	0.9		
	1420 BOUL	3	1812	1813	2	1.0			
	225 HARS	5	1855.5	1857	3	200.0	70.0		
19	1420 CRON	3		0004	6.5	4.0	1.0		
	260 ONDR	41	0510	1325.5	650	40.0			
	204 KIEV	42	0700 E		480 D	17.0	10.0		
	245 SGMR	44	0910 E	2339.5	909 D	50.0			
	9285 ARCE	20	1519	1558.5	150				RECORD DIST.
	245 BOUL	42	2043	0142	321 D			2	
	2695 PENT	24	2200		210	7.4			
20	100 GORK	44	0303 E		419		5.0		
	260 ONDR	44	0510	1124	650	75.0			
	204 KIEV	44	0700 E		480 D	22.0	9.0		
	245 SGMR	44	0910 E	1132.1	909 D	76.1			
	245 BOUL	42	1158 E	1318	100 D			1	
	3000 BERL	2	1112.5	1113.2	1.5	4.5	1.4		
	18 MCMA	6	1230	1232	2			1	
	18 MCMA	6	1530	1531	2			1	
	18 MCMA	6	1543	1544	2			1	
	2800 OTTA	24	1830		120	2.4			
	18 MCMA	42	1956	2006	10			1	
	18 MCMA	42	2011	2013	9			1	
	18 MCMA	42	2046	2052	9			1	
21	260 ONDR	44	0510	0659	230	60.0			
	221 ABST	41	0700	0707	120	14.0			
	234 POTS	41	0732.9	0733	4.6	150.0	5.0		
	2695 CANR	3	1208	1208.5	1.5	4.0	1.0		
	18 MCMA	41	1259	1307	10			1	
	18 MCMA	41	1356	1405	46			1	
	260 ONDR	5	1453	1453	.5	45.0			
	18 MCMA	41	1519	1535	34			1	
	1420 BOUL	45	1746.5	1747	1.5	4.0	1.0		
	2800 OTTA	24	1750		80	1.8			
	245 BOUL	41	1834	1853	27			1	
	18 MCMA	42	1930	2016	126			1	
	245 BOUL	42	1945	2020	103			1	
	18 BOUL	6	2102	2105	6			3	
	18 BOUL	48	2117	2125	12			3	
	208 VORO	24	2305	2330	41	20.0			
	245 BOUL	41	2323	2333	14			1	
	2695 PENT	1	2343.5	2344	1.2	1.6	0.8		
22	100 GORK	44	0410		305		5.0		
	260 ONDR	44	0510	1102.5	640	30.0			
	160 GORK	44	1015		165		5.0		
	2800 OTTA	20	1220	1235	40	1.8	0.9		
	4995 SGMR	1	1231.1	1232.4	3.6	5.6	2.0		
	2800 OTTA	26	1310		45	3.6			
	18 MCMA	42	1340	1359	63			2	
	2800 OTTA	32	1410	1438	50	-2.0	-1.0		
	18 MCMA	42	1516	1529	51			1	
	4995 BOUL	3	1544	1545	1.5	12.0	5.0		
	960 PENN	40	1603.3		1.5				
	2700 PENN	8	1604.2	1604.6	.9	57.5			
	18 MCMA	42	1756	1918	104			1	
	18 MCMA	42	2017	2019	8			1	
	18 MCMA	42	2017	2036	23			2	

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	18	MCMA	42	2105	2107	8			1	
23	200	HIRA	45	0316.5	0318	3	150.0	30.0		
	3750	TYKW	20	0404	0410	15	3.0	1.0		
	4995	CRON	45	0406.5	0407.5	6	14.0	4.0		
	4995	MANI	1	0407.5	0407.9	4	9.2	3.1		
	4995	ATHN	1	0407.6	0407.9	2.2	3.8	.9		
	260	ONDR	44	0520	1532	630	45.0			
	204	KIEV	44	0700 E		480 D	32.0	8.0		
	245	SGMR	43	1445	1515.4	430.2	43.1			
	221	ABST	1	0756.2	0756.5	.7	32.0			
	9500	BERL	4	1043.5	1044.6	7.5	21.0	4.2		
	1420	CANR	8	1043.5	1044	5	7.0	3.0		
	8800	ATHN	3	1044.1	1044.9	4	25.6	5.9		
	8800	SGMR	3	1044.5	1044.8	2.7	24.8	6.0		
	4995	ATHN	3	1044.2	1044.9	4.4	20.2	5.8		
	4995	SGMR	3	1044.5	1044.8	2.4	21.5	5.0		
	3000	BERL	2	1044	1044.7	7.5	6.4	1.8		
	2800	OTTA	1	1044.5	1045	1.5	5.6	1.9		
	2695	SGMR	1	1044.5	1044.8	1.6	5.9	2.0		
	2695	CANR	8	1045.5	1046	1.5	7.0	3.0		
	9285	ARCE	3	1047	1048.1	1.5				ATMOSPHERIC
	9285	ARCE	29	1048.5	1048.8	25				DUBIOUS TIME
	2830	ARCE	1	1047	1048	3				RECORD DIST.
	245	BOUL	41	1527	1532	11			1	
	2800	OTTA	20	1725	1755	65	2.2	1.0		
	4995	BOUL	3	2024	2025	2.5	14.0	5.0		
	4995	SGMR	1	2024.5	2025.3	1.7	9.9	4.0		
	2800	OTTA	21	2024.8	2037	40	1.8	0.9		
	2800	OTTA	1	2024.8	2025.2	2	1.8	0.9		
	3750	TYKW	20	2335	2340	20	4.0	2.0		
	4995	BOUL	3	2337	2338	3.5	12.0	5.0		
24	3750	TYKW	45	0145	0157.7	25	5.0	1.0		
	3750	TYKW	45	0214	0220.4	70	8.0	3.0		
	2000	TYKW	20	0218	0242	65	2.0	1.0		
	9400	TYKW	20	0220	0245	80	4.0	2.0		
	1000	TYKW	20	0233	0242	35	.7	0.3		
	536	ONDR	45	0646.5	0656.5	18	50.0			
	2695	CRON	3	0650	0655.5	9	9.0	3.0		
	260	ONDR	43	0650	0658	240	35.0			
	808	ONDR	45	0652	0656	8	80.0			
	204	KIEV	44	0700 E		480 D	25.0	9.0		
	221	ABST	1	0723	0723.2	.5	21.0			
	221	ABST	1	0840.5	0840.8	.5	18.0			
	221	ABST	1	0932.2	0932.5	.5	21.0			
	2800	OTTA	20	2000	2005	40	1.6	1.0		
	18	MCMA	6	2313	2315	2			1	
25	260	ONDR	44	0510	0959.5	670	40.0			
	210	IZMI	41	0958	0958	1.5	70.0			
	234	POTS	45	0959.2	0959.3	.2	100.0	15.0		
	23	POTS	45	0959	0959.4	.9	5000.0	400.0		
	18	MCMA	42	1227	1456	255			2	
	2800	OTTA	20	1450	1515	50	1.8	0.9		
	1420	BOUL	3	1532.5	1535	4.5	2.0	1.0		
	2695	BOUL	3	1658	1659	4	4.0	1.0		
	245	BOUL	42	1722	1750	80			1	
	245	BOUL	42	2030	2042	257			1	
	208	VORO	43	2202	2228	178	13.0			
	200	HIRA	45	2048	2049	2.5	140.0	40.0		
	18	MCMA	42	2048	2050	6			1	
	3750	TYKW	1	2141.5	2142.1	1.5	5.0	2.0		
	1000	TYKW	1	2141.5	2142.1	1.5	3.0	1.0		
26	200	HIRA	45	0012	0140	188	510.0	20.0		
	9400	TYKW	45	0037	0044	42	12.0	6.0		
	4995	MANI	4	0037.5	0039.7	10.3	13.6	3.0		
	4995	BOUL	3	0037.5	0039	3	1.2	5.0		
	3750	TYKW	45	0037	0039.6	10	8.0	5.0		
	3750	TYKW	29	0047		49	5.0	4.0		
	2695	MANI	20	0037.6	0039.7	10	4.6	.9		
	1415	MANI	40	0037.9	0039.2	7.1	59.0	14.2		
	9750	IRKU	20	0038	0039.7	15	8.0			
	8800	MANI	1	0038.2	0039.7	8	7.4	1.9		
	4995	CRON	45	0038	0043	7	7.0	2.0		
	2695	PENT	24	0038		7	4.4			
	2695	BOUL	45	0038.5	0044	14.5	7.0	2.0		
	2000	TYKW	45	0038	0039	10	7.0	3.0		
	2000	TYKW	29	0048		42	3.0	3.0		
	1420	BOUL	45	0038	0039.5	6.5	47.0	14.0		
	1420	CRON	45	0038	0039	7	51.0	10.0		
	1000	TYKW	45	0038.5	0043.3	9.5	55.0	7.0		
	1000	TYKW	29	0048		40	1.0	1.0		
	606	MANI	40	0038.6	0044.4	7.7	12.5	2.1		
	2695	CRON	45	0041	0042.5	6	6.0	1.0		
	606	MANI	46	0122	0139.5	66.2	455.0	92.0		
	1000	TYKW	45	0128	0142.1	60	350.0	65.0		
	1000	TYKW	29	0228		120	2.0	1.0		
	2000	TYKW	45	0130	0140.7	40	515.0	95.0		

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	2000	TYKW	29	0210		170	6.0	2.0		
	500	HIRA	45	0131		54		85.0		
	500	HIRA		0131	0139.6		520.0			
	500	HIRA		0131	0213.6		430.0			
	2695	MANI	47	0132.3	0142.1	38.2	510.0	235.0		
	1420	CRON	45	0132.5	0143	50.5	278.0	65.0		
	1415	MANI	4	0132.3	0142.1	51.2	325.0	70.0		
	4995	MANI	4	0133.7	0142.1	48.4	390.0	162.0		
	4995	CRON	3	0135	0145	34.5	268.0	76.0		
	9750	IRKU	3	0136	0144	39	315.0			
	9400	TYKW	3	0136	0144.5	34	260.0	85.0		
	9400	TYKW	29	0210		180	11.0	5.0		
	8800	MANI	4	0136.3	0144.2	40.2	275.0	158.0		
	3750	TYKW	3	0136	0142	34	410.0	110.0		
	3750	TYKW	29	0210		160	10.0	3.0		
	2695	PENT	47	0136	0142	17 D	540.0			
	100	HIRA	45	0136	0139.8	50	230.0	50.0		
	2695	CRON	3	0137.5	0142.5	32	337.0	119.0		
	100	GORK	44	0306 E		147		5.0		
	23	POTS	5	0633.1	0633.1	.6	4000.0	1500.0		
	606	MANI	40	0841.4	0845	5.8	18.5	4.0		
	23	POTS	45	1043.8	1044	.6	10000.0	500.0		
	18	MCMA	6	1214	1215	3			1	
	18	MCMA	41	1506	1511	7			1	
	7000	SAOP	8	1507.5	1507.7	.3	22.5	11.2		
	7000	SAOP	22	1509.9		14.4	18.7			
	2800	OTTA	22	1510	1555	75	2.8	1.6		
	18	MCMA	42	1605	1610	7			2	
	9285	ARCE	1	1702.1	1703.3	2				
	2830	ARCE	1	1702.2	1703.3	2				
	2800	OTTA	20	1820	1840	60	1.2	0.6		
27	9100	GORK	1	0434	0436	3.5	5.0	2.5		
	9750	IRKU	20	0534	0539	25	7.7			
	4995	CRON	3	0536.5	0538.5	5	15.0	5.0		
	3100	CRIM	3	0536	0539	11	20.0	7.0		
	9400	TYKW	3	0537.5	0539	4	12.0	5.0		
	9100	GORK	20	0537.6	0539	15.1	15.0	4.5		
	8800	MANI	4	0537.4U	0538.8	3.2U	17.6U	5.0U		
	4995	MANI	4	0537.4U	0538.8	3.2U	14.5U	4.4U		
	4995	ATHN	4	0537.8	0538.7	10 U	16.3	5.2U		
	3750	TYKW	45	0537	0538.7	9	20.0	4.0		
	2695	CRON	45	0537	0539.5	9	11.0	2.0		
	2695	MANI	2	0537.4U	0538.8	3.2U	9.5U	1.8U		
	2000	TYKW	45	0537	0538.7	11	16.0	3.0		
	1420	CRON	45	0537	0539	7	26.0	7.0		
	1415	MANI	4	0537.4U	0538.3	3.2U	10.3U	2.5U		
	1415	ATHN	4	0537	0538.2	10 U	16.0	5.5U		
	1000	TYKW	45	0537	0538.3	15	63.0	7.0		
	950	GORK	46	0537.6	0538.5	9.9	42.0D			
	950	GORK		0537.6	0542.4		12.0			
	808	ONDR	45	0537.5	0538.5	12.5	160.0			
	650	GORK	23	0537.3	0543.3	15.4	5.3			
	606	MANI	40	0537.4U	0539.8	11.6U	29.4U	4.2U		
	500	HIRA	27	0537	0540	12	4.0	2.0		
	260	ONDR	45	0537.5	0538.5	9	150.0			
	225	HARS	45	0537.5	0539	5	130.0	35.0		
	200	HIRA	45	0537.5	0539	3.5	550.0	150.0		
	200	GORK	41	0537.6	0538.1	2.7	300.0			
	200	GORK		0537.6	0538.9		300.0D			
	100	HIRA	45	0537.5		3	90.0D	50.0D		
	8800	ATHN	2	0538.2	0538.6	6 U	9.6	3.8U		
	2695	ATHN	4	0538.1	0539.6	8 U	12.1	4.4U		
	650	GORK	46	0538.5	0538.8	2.1	27.0			
	650	GORK		0538.5	0539.9		35.0			
	29	UPIC	45	0538.5	0540	2				
	536	ONDR	45	0539	0545	9	100.0			
	650	GORK	2	0542.3	0542.6	1	8.5	4.0		
	500	HIRA	45	0544.3	0545	1.5	210.0	65.0		
	650	GORK	3	0545.2	0545.4	.6	26.0	13.0		
	1000	TYKW	41	0558	0602.1	35	20.0	0.3		
	100	GORK	44	0600		90		5.0		
	500	HIRA	45	0611	0616	11	70.0	20.0		
	536	ONDR	45	0613	0616	9	85.0			
	650	GORK	41	0615.4	0615.5	6	5.3			
	650	GORK		0615.4	0618.6		7.3			
	650	GORK		0615.4	0621		16.5			
	100	GORK	41	0637.6	0637.7	2.8	25.0			
	100	GORK		0637.6	0638.6U		100.0D			
	100	GORK		0637.6	0639.6		100.0			
	650	GORK	1	0842.7	0843.9	6	3.3	1.3		
	18	MCMA	6	1225	1226	2			1	
	536	ONDR	45	1355	1355.5	1	35.0			
	4995	BOUL	3	1445	1446.5	2.5	8.0	3.0		
	2695	BOUL	3	1545.5	1547	3	3.0	1.0		
28	100	HIRA	45	0024.5	0026.2	23	150.0	35.0		
	2950	GORK	45	0537.6	0539.6	8.4	167.0			
	2950	GORK		0537.6	0545.3		7.7			
	260	ONDR	45	0910	0913	4.5	25.0			

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	7000	SAOP	2	1522.4	1523.1	1.4	13.6	6.8		
	2800	OTTA	2	1523.9	1525.9	3.1	2.8	1.5		
	2800	OTTA	29	1527		15	1.2	0.6		
	2700	PENN	1	1523.8	1525.5	3.7	3.8	2.0		
	2695	BOUL	3	1523	1526	4.5	3.0	1.0		
	18	MCMA	6	1526	1528	4			2	
	2700	PENN	20	1848	1909.8	103	5.3	3.0		
	9400	HUAN	20	1858.6	1913.2	70.7	10.2	5.8		
	8800	SGMR	3	1858.9	1859.8	4.6	12.6	5.0		
	4995	CANR	3	1858.5	1859.5	3	14.0	4.0		
	4995	BOUL	3	1858	1859.5	4	18.0	4.0		
	4995	SGMR	3	1858.9	1859.8	5.1	13.0	5.2		
	2695	CANR	8	1858.5	1900	4.5	16.0	5.0		
	1420	CANR	3	1858.5	1900	3.5	10.0	4.0		
	1415	SGMR	3	1858.9	1859.9	7.8	12.6	5.0		
	960	PENN	45	1858.8	1859.5	2.2	37.1	6.1		
	2800	OTTA	21	1859	1910	200	3.2	1.6		
	2800	OTTA	4	1859	1900	4	14.0	5.0		
	2700	PENN	3	1859	1859.9	1.9	16.0	8.0		
	2695	BOUL	3	1859	1900.5	4.5	24.0	6.0		
	2695	SGMR	3	1859	1859.8	5.5	11.5	4.6		
	1420	BOUL	3	1859	1900	5	8.0	3.0		
	606	SGMR	1	1859.2	1859.8	2	1.8	.7		
	7000	SAOP	2	1908.9	1909.3	2.6	20.5	10.3		
	7000	SAOP	45	1945.6	1948.7	4.2	177.9	78.0		
	606	SGMR	1	2319.5	2320.3	8.8	4.9	2.2		
	410	SGMR	6	2319.6	2320.5	12.5	56.0	22.2		
	245	SGMR	6	2319.6	2326.3	11.4	27.3	10.4		
	1420	BOUL	3	2322.5	2326.5	7	2.0	1.0		
	2695	PENT	2	2324	2326.5	6	2.8	1.2		
	2695	BOUL	3	2324.5	2327.5	6	4.0	1.0		
	3750	TYKW	1	2325	2326.3	4	2.0	1.0		
	2000	TYKW	1	2325	2326.3	4	1.4	0.5		
	1000	TYKW	45	2325	2326.5	4	3.0	1.0		
29	2000	TYKW	45	0145	0152.7	15	28.0	3.0		
	1000	TYKW	45	0145	0148.3	15	42.0	11.0		
	1420	CRON	45	0146	0152	13	9.0	3.0		
	3750	TYKW	45	0147	0154.1	40	11.0	2.0		
	3750	TYKW			0152.8		37.0			
	2695	PENT		0147	0148.5	6 D	4.2			
	2695	CRON	3	0147.5	0148	1.5	4.0	1.0		
	200	HIRA	45	0147.5	0148.2	1.2	770.0	100.0		
	100	HIRA	45	0147.5	0148.4	1.5	160.0	50.0		
	500	HIRA	5	0148	0148.1	.3	50.0	40.0		
	2695	CRON	3	0151.5	0153.5	7	11.0	3.0		
	9400	TYKW	20	0152	0200	30	4.0	2.0		
	4995	CRON	3	0152.5	0153	4.5	7.0	3.0		
	606	MANI	40	0152.3	0153.5	9.2	49.2	12.0		
	8800	MANI	3	0154.2E	0154.2U	3.6D	11.7U	5.9D		
	4995	MANI	1	0154.2E	0154.2U	3.6D	7.5U	4.5D		
	2695	MANI	3	0154.2E	0154.2U	3.6D	11.8U	4.7D		
	1415	MANI	2	0154.2E	0154.2U	5.4D	9.3U	3.7D		
	200	HIRA	45	0216	0216.6	1	75.0	30.0		
	100	HIRA	45	0246	0246.4	1	250.0	30.0		
	100	HIRA	45	0249	0249.5	1.5	110.0	30.0		
	100	HIRA	45	0252.5	0252.7	1	90.0	25.0		
	100	HIRA	45	0254.5	0255.5	8.5	150.0	50.0		
	200	HIRA	45	0258.5	0258.5	.5	150.0	50.0		
	9400	TYKW	20	0323	0334	45	8.0	4.0		
	4995	CRON	3	0323	0323.5	1	6.0	2.0		
	3750	TYKW	20	0323	0333.6	65	9.0	2.0		
	2695	CRON	8	0323	0324	2	7.0	3.0		
	2000	TYKW	20	0323	0324.8	65	3.0	1.0		
	3750	TYKW	3	0324.4	0324.8	1	22.0	3.0		
	4995	CRON	3	0331.5	0332.5	2	7.0	3.0		
	4995	MANI	3	0332.2	0333.6	4.1	12.0	3.0		
	100	HIRA	45	0346.5	0350.4	17	1000.0D	200.0D		
	100	HIRA	45	0420	0424.2	5.5	1000.0D	160.0D		
	200	GORK	6	0624.6	0624.6	.2	300.0	150.0		
	204	KIEV	42	0700 E		480 D	39.0	6.0		
	260	ONDR	44	0800	1516	480	180.0			
	410	SGMR	44	0913 E	1125.3	767 D	7.6			
	245	SGMR	44	0913 E	1137.2	782 D	26.8			
	100	GORK	44	1115 U		105		5.0		
	221	ABST	3	0747.5	0748.5	1.2	17.0	3.0		
	2000	TYKW	1	0804.3	0804.5	.5	1.0	0.3		
	1000	TYKW	45	0804	0804.6	1	11.0	2.0		
	930	BORD	45	0804	0804.5	1	19.0	2.0		
	221	ABST	3	0804	0804.5	1	30.0	5.0		
	210	IZMI	6	0804	0804.8	1	120.0	60.0		
	100	HIRA	45	0804.3	0804.4	1.6	110.0	40.0		
	221	ABST	3	0806.8	0807	1	30.0	6.0		
	100	GORK	6	0849.2	0849.4	.5	90.0			
	100	GORK	41	0914.2	0914.8	13	80.0			
	100	GORK		0914.2	0922.9		90.0D			
	100	GORK		0914.2	0926.1		100.0D			
	221	ABST	3	0917.5	0918.5	1.5	31.0	5.0		
	200	GORK	6	0949.6	0949.8	1	450.0	100.0		
	100	GORK	6	0949.5	0949.8	1.8	90.0D			

SOLAR RADIO EMISSION
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JUNE 1973

JUN. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
29	210	IZMI	6	0950	0950.2	1	105.0	60.0		
	100	GORK	41	1020	1020.1	13.4	90.0			
	100	GORK		1020	1022.1		100.0D			
	100	GORK		1020	1033		90.0			
	1500	BERL	4	1021.5	1021.6	.6	6.2	1.8		
	410	SGMR	6	1040.4	1040.5	.8	25.6	5.0		
	408	TRST	45	1040.4	1040.5	.7	48.0	15.0		
	245	SGMR	6	1040.3	1040.5	.8	216.0	21.0		
	234	POTS	45	1040.5	1040.6	.3	350.0	35.0		
	200	GORK	6	1040.4	1040.4	.6	500.0	200.0		
	100	GORK	6	1040.4		1	100.0D			
	210	IZMI	6	1041	1041.3	.6	240.0	160.0		
	3000	BERL	4	1238	1238.2	.5	10.0	4.2		
	1500	BERL	4	1238.4	1238.5	.6	12.0	2.8		
	410	SGMR	6	1307.6	1311.5	8	16.4	4.1		
	245	SGMR	6	1307.6	1308.3	7.9	113.8	28.5		
	234	POTS	41	1308	1308.4	3.7	175.0	1.0		
	225	HARS	45	1308	1309	4	120.0	40.0		
	1415	SGMR	1	1309.9	1310.3	2.5	2.2	.6		
	930	BORD	41	1309	1311.4	4	14.0	2.0		
	606	SGMR	1	1310	1310.2	.5	4.3	1.0		
	29	UPIC	45	1310	1311	2				
	18	MCMA	6	1312	1316	5			1	
	7000	SAOP	22	1316.4		110	14.8			
	410	SGMR	6	1325.7	1326	.8	16.0	4.0		
	245	SGMR	6	1325.6	1326	1	41.5	10.4		
	410	SGMR	6	1513.6	1514.3	5.2	44.5	11.1		
	245	SGMR	7	1513	1514.3	5.5	341.0	83.4		
	225	HARS	45	1513	1516	7	130.0	40.0		
	29	UPIC	45	1513		5				
	9285	ARCE	1	1515.8	1516.6	2.8				
	4995	SGMR	2	1515.9	1516.4	2.3	3.9	1.0		
	2830	ARCE	40	1515.5	1516.2	3				
	2800	OTTA	2	1515.7	1516.3	2	9.4	3.2		
	2695	ATHN	45	1515.6	1516.5	3.4	8.0	3.4		
	2695	SGMR	46	1515.8	1516.4	3.8	9.9	2.3		
	2695	SGMR	46		1517.2		10.6			
	1420	CANR	45	1515.5	1517	3.5	48.0	6.0		
	1420	BOUL	45	1515.5	1516.5	3	48.0	9.0		
	1420	BOUL	8	1515.5	1518	4.5	8.0	2.0		
	1415	ATHN	46	1515.1	1516.2	3.3	58.0	8.7		
	1415	SGMR	46	1515.7	1516	3.6	32.6	12.5		
	1415	SGMR	46		1516.4		48.6			
	930	BORD	45	1515	1516.2	5	65.0	3.0		
	606	SGMR	46	1515.5	1515.7	2	17.4	12.1		
	606	SGMR	46		1516.3		48.4			
	8800	ATHN	1	1516.1	1516.5	1	2.6	1.0		
	8800	SGMR	2	1516.1	1516.4	3.9	5.0	1.1		
	4995	ATHN	1	1516 U	1516.3	2 U	3.4	1.1U		
	2700	PENN	40	1516.7		1.8				
	2695	CANR	45	1516	1518	12	15.0	4.0		
	2695	BOUL	45	1516	1518	3.5	14.0	4.0		
	18	BOUL	6	1517	1522	5			2	
	1420	BOUL	45	1738.5	1738.5	1.5	5.0	2.0		
	7000	SAOP	23	1856.6	1900	35.3	34.3			
	7000	SAOP	22	1856.6		35.3	20.6			
	7000	SAOP	2	1859.8	1900	1.4	17.1	8.2		
	410	SGMR	6	1859.6	1900.2	2.9	5.3	2.6		
	245	SGMR	6	1859.6	1900.2	2.2	15.4	6.2		
	4995	CANR	8	1907.5	1909	3	18.0	6.0		
	410	SGMR	6	1907.4	1908.6	6.3	39.9	16.0		
	245	SGMR	6	1907.4	1908.6	4.8	171.7	68.7		
	8800	SGMR	4	1908.4	1909.4	1.5	10.4	4.2		
	4995	BOUL	8	1908	1909.5	1.5	15.0	5.0		
	4995	SGMR	4	1908.7	1909.4	7.5	12.9	5.2		
	2800	OTTA	2	1908.8	1909.1	3	5.8	1.5		
	2695	CANR	45	1908	1909.5	4	11.0	4.0		
	2695	SGMR	2	1908.7	1909.1	1.9	6.2	2.5		
	1420	CANR	45	1908.5	1909.5	3.5	5.0	2.0		
	1420	BOUL	45	1908.5	1909.5	3	3.0	1.0		
	1415	SGMR	2	1908.7	1909.3	4.9	5.1	2.0		
	606	SGMR	4	1908.3	1908.7	3.1	16.5	6.6		
	225	HARS	45	1908.5	1909	2	150.0	50.0		
	18	MCMA	6	1908	1913	6			2	
	2695	BOUL	3	1909	1909.5	2.5	6.0	2.0		
	18	BOUL	6	1909	1913	5			2	
	225	HARS	45	1911	1911.5	2	200.0	60.0		
	15400	SGMR	4	1946.4	1948.9	13.1	74.0	49.5		
	10700	PENN	45	1946.6	1948.9	3.7	138.0	47.2		
	10700	PENN	29	1950.3	1950.3	164	23.5	7.6		
	9400	HUAN	45	1946.3	1948.8	4.1	163.0	50.0		
	9400	HUAN	30	1950.4	1950.4	26.8	22.1	11.3		
	8800	SGMR	46	1946.8	1948.8	6.5	160.0	106.4		
	8800	SGMR	46		1949		140.0			
	8800	SGMR	29	1953.3	1953.3	33.9	16.0	3.6		
	4995	BOUL	45	1946	1949.5	6	40.0	25.0		
	4995	SGMR	46	1946.4	1947.9	6.8	98.0	78.3		
	4995	SGMR	46		1949		120.0			
	4995	SGMR	29	1953.2	1953.2	45.9	8.0	1.8		
	2800	OTTA	45	1946	1948	8	101.0	23.5		
	2800	OTTA		1946.5	1948	2.6	101.0			

SOLAR RADIO EMISSION
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JUNE 1973

JUN. 1973	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
	2800	OTTA		1948.6	1949	5.4	79.0			
	2800	OTTA	30	1954		240	6.8	4.0		
	2700	PENN	45	1946.8	1948.1	3.5	158.0	71.5		
	2700	PENN	29	1950.3	1950.3	210 D	19.2			
	2695	SGMR	46	1946.5	1948	6.9	120.0	77.6		
	2695	SGMR	46		1949		90.0			
	2695	SGMR	29	1953.4	1953.4	32.2	12.8	2.9		
	1420	BOUL	45	1946.5	1949	8.5	31.0	9.0		
	1415	SGMR	46	1946.5	1948.3	15.2	55.0	26.5		
	1415	SGMR	46		1949		46.0			
	960	PENN	45	1946.8	1948.4	3.5	35.0	12.0		
	960	PENN	29	1950.3	1950.3	213 D	5.5			
	2695	BOUL	45	1947	1949	10.5	68.0	28.0		
	606	SGMR	4	1947.1	1947.5	1.7	150.0	98.8		
	9400	HUAN	20	1952.3	1952.4	6	7.9	5.1		
	2800	OTTA	1	1959.5	2000.1	2	2.8	1.4		
	2695	BOUL	3	2000	2001	1.5	4.0	1.0		
	1420	BOUL	3	2000	2001	2	3.0	1.0		
	606	SGMR	1	2117.2	2117.7	.8	8.5	3.4		
	410	SGMR	6	2117.2	2117.7	3.3	19.8	7.9		
	245	SGMR	6	2117.1	2117.6	2.8	55.4	22.2		
	100	HIRA	45	2117.3	2117.5	2.7	60.0	15.0		
	1420	BOUL	3	2158.5	2159.5	4	3.0	1.0		
30	100	HIRA	45	0047.5	0047.8	1	150.0	20.0		
	200	HIRA	45	0051.8	0052.5	2	150.0	40.0		
	100	HIRA	45	0051.5	0052.8	2.8	110.0	30.0		
	3750	TYKW	1	0052.3	0052.6	.6	2.0	1.0		
	2000	TYKW	1	0052.6	0052.8	.5	7.0	2.0		
	1415	MANI	8	0052.7	0052.8	.4	27.9	9.3		
	1000	TYKW	45	0052.3	0052.9	1	11.0	2.0		
	606	MANI	1	0052.4	0052.9	1.1	6.8	1.9		
	208	VORO	6	0052	0053	2	80.0	25.0		
	100	HIRA	45	0134	0135.6	2	300.0	100.0		
	100	HIRA	45	0137	0139.9	13	1000.0D	300.0D		
	100	HIRA	45	0404	0404.3	1	90.0	10.0		
	100	GORK	6	0438.5	0439.4	1.7	80.0D			
	260	ONDR	41	0520	1102.5	640	100.0			
	221	ABST	3	0737	0737.2	.7	13.0	3.0		
	221	ABST	1	0812.8	0812.8	.7	13.0			
	4995	BOUL	45	1513	1517 U	13	31.0U	9.0U		
	1415	ATHN	45	1513.8	1517.3	9.9	7.3	3.9		
	10700	PENN	20	1514.9	1517.6	97	30.3	8.2		
	9400	HUAN	23	1514.5	1517.4	105.9	40.9	10.1		
	9285	ARCE	45	1514.7	1517.4	4.3				
	9285	ARCE	45	1514.7	1516	2.3				
	8800	ATHN	45	1514.9	1517.3	8.4	38.6	26.4		
	7000	SAOP	45	1514.3	1517.1	3.5	86.4	53.9		
	4995	ATHN	45	1514.7	1517.4	8.6	40.3	25.4		
	4995	CANR	45	1514.5	1517	10.5	38.0	10.0		
	2830	ARCE	28	1514.9		2.1				
	2700	PENN	3	1514.9	1517.6	4	68.7	26.4		
	2700	PENN	29	1518.9	1518.9	88.6	15.3	7.6		
	2695	ATHN	45	1514.6	1517.3	8.4	35.5	17.2		
	15400	SGMR	3	1515.2	1517.5	20.3	29.2	11.8		
	8800	SGMR	45	1515	1516.1	5	32.8	14.4		
	8800	SGMR	45		1517.5		38.1			
	8800	SGMR	29	1520	1520	39.5	20.5	10.2		
	4995	SGMR	45	1515	1516.1	5.5	28.8	16.2		
	4995	SGMR	45		1517.5		43.6			
	4995	SGMR	29	1520.5	1520.5	39.7	13.7	6.8		
	2800	OTTA	3	1515	1516.5	5	18.6	12.4		
	2695	BOUL	45	1515.5	1518	14	36.0	7.0		
	2695	SGMR	3	1515.1	1517.6	5.9	36.3	14.1		
	2695	SGMR	29	1521	1521	39.4	9.7	4.3		
	1415	SGMR	1	1515.5	1517.6	7.7	6.3	3.1		
	960	PENN	40	1515.5		3.6				
	930	BORD	41	1515	1518.8	4	140.0	2.0		
	2695	CANR	45	1516	1518.5	11	35.0	9.0		
	808	ONDR	45	1516.5	1518.5	3	75.0			
	9285	ARCE	45	1517	1517.4	2				
	9285	ARCE	29	1519		130				
	2830	ARCE	3	1517	1517.5	2.2				
	2830	ARCE	29	1519.2		68				
	2800	OTTA	3	1517	1517.5	1	22.0	11.0		
	2800	OTTA	29	1520		220	8.4	2.8		
	1420	CANR	3	1517	1517.5	2.5	4.0	1.0		
	2800	OTTA	21	2153	2159	125	5.4	1.8		
	2700	PENN	20	2153.9	2159.4	64.2	27.4	6.2		
	10700	PENN	20	2156.3	2159.3	40.9	20.7	6.3		
	9400	TYKW	45	2156	2159.3	15	20.0	5.0		
	8800	SGMR	4	2156.7	2159.4	10	15.6	6.2		
	4995	BOUL	3	2156.5	2158	4	21.0	7.0		
	4995	SGMR	4	2156.7	2159.3	7.9	18.9	7.4		
	3750	TYKW	45	2156	2159.3	13	23.0	5.0		
	2800	OTTA	1	2157	2157.3	1	1.8	0.9		
	15400	SGMR	4	2158	2159.2	1.8	16.3	6.6		
	2800	OTTA	3	2158.5	2159	4	12.0	6.0		
	2695	BOUL	3	2158.5	2200	5.5	18.0	6.0		
	2695	SGMR	4	2158.5	2159.5	7.7	10.4	4.2		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

JUNE 1973

JUN. 1973	FREQUENCY STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
			UT	UT	MINUTES	PEAK	MEAN		
30	2000 TYKW	1	2158	2159.4	7	5.0	2.0		
	1415 SGMR	1	2158.5	2159.7	4.2	2.8	1.1		
	9400 HUAN	2	2159.4	2159	1.4	17.0	7.8		
	18 MCMA	6	2356	2357	2			1	

Observatories:

ABST = Abastumani
ARCE = Arcetri
BERL = Berlin-Adlershof
BORD = Bordeaux
BOUL = Boulder
CANR = Canary Islands
CRIM = Simferopol
CRON = Carnarvon
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
DWIN = Dwingeloo
HUAN = Huancayo
IRKU = Irkutsk
IZMI = Moscow IZMIRAN
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
ONDR = Ondrejov
OTTA = Ottawa ARO
PENN = Penn. State Univ.
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SLOU = Slough
SGMR = Sagamore Hill
TRST = Trieste
TYKW = Toyokawa
UPIC = Upice
VORO = Voroshilov

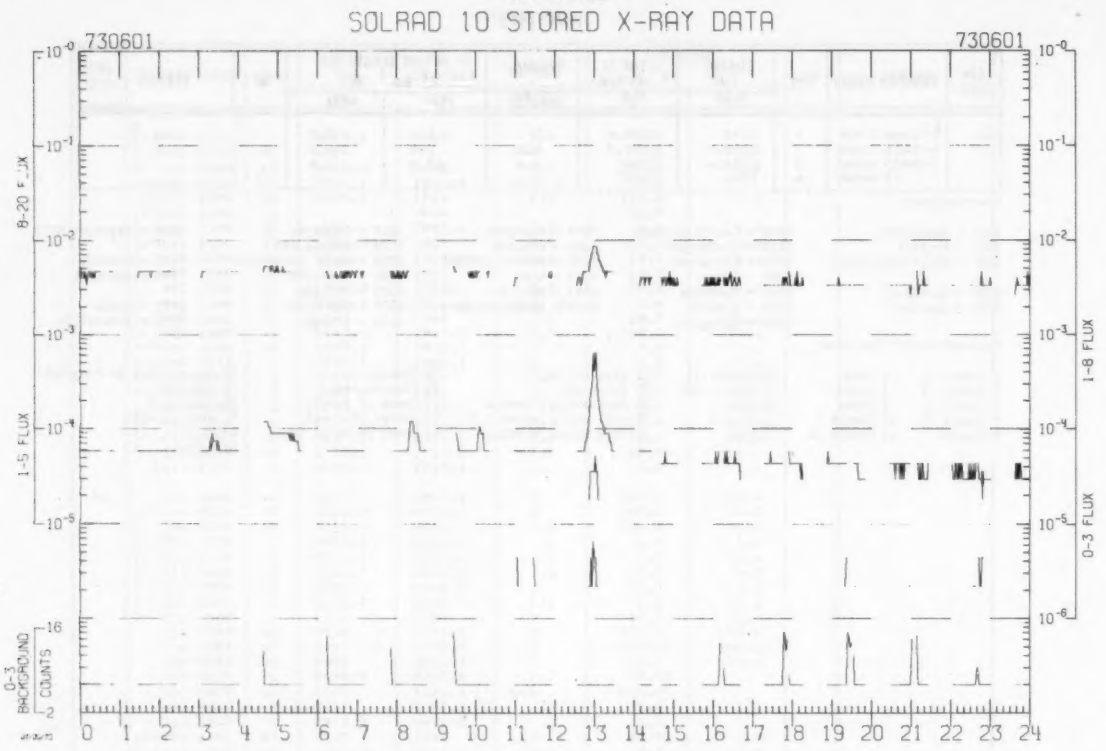
Explanation of Type Code:

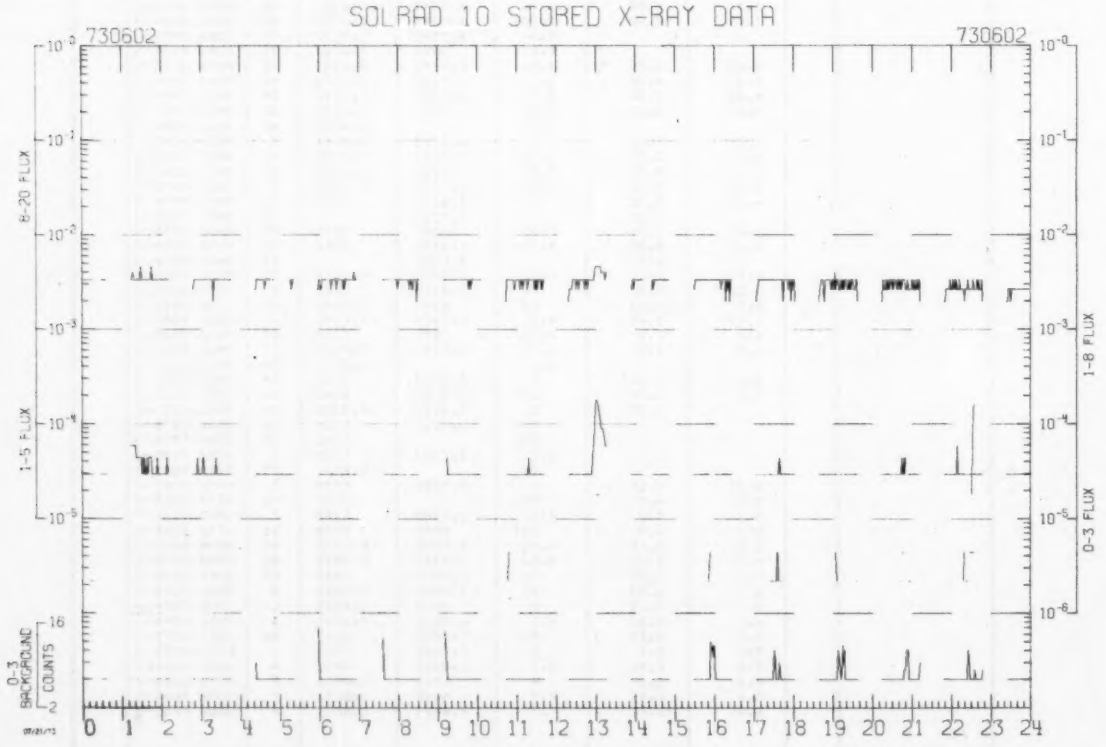
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

30
Jun 73

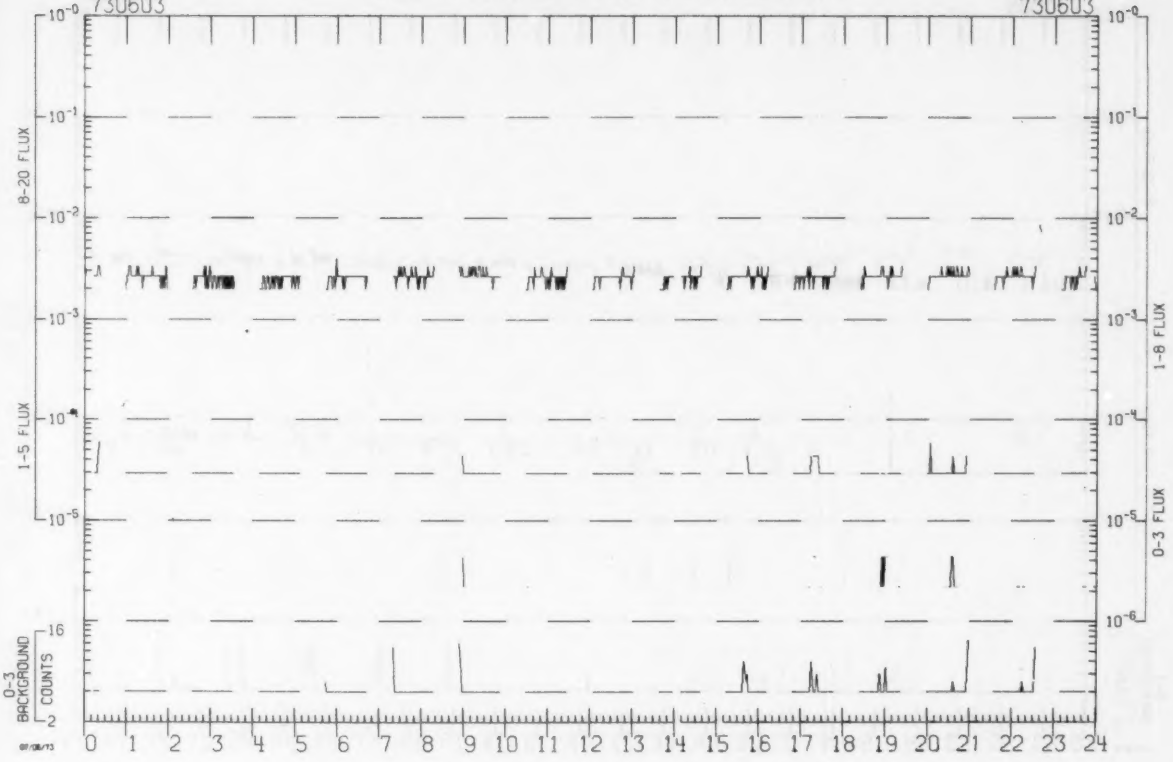
SOLAR X-RAYS MEASURED BY SATELLITE SOLRAD 10 - EXPLORER 44

JUNE 1973

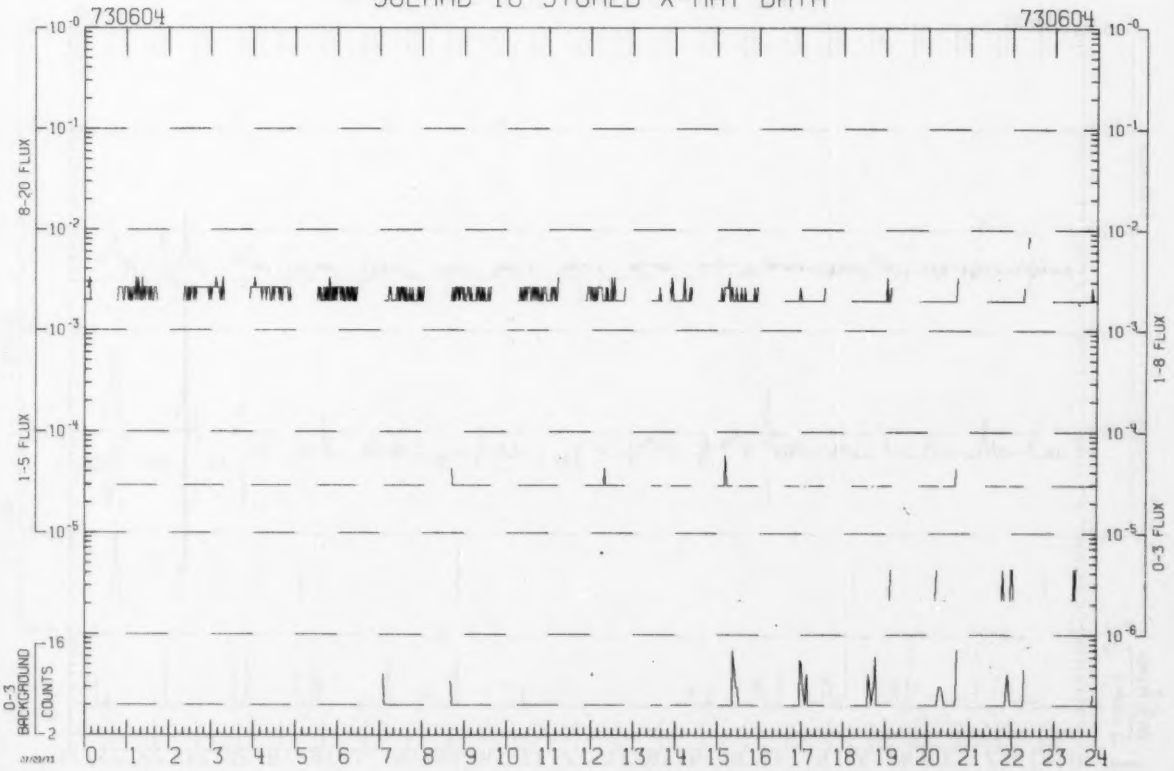


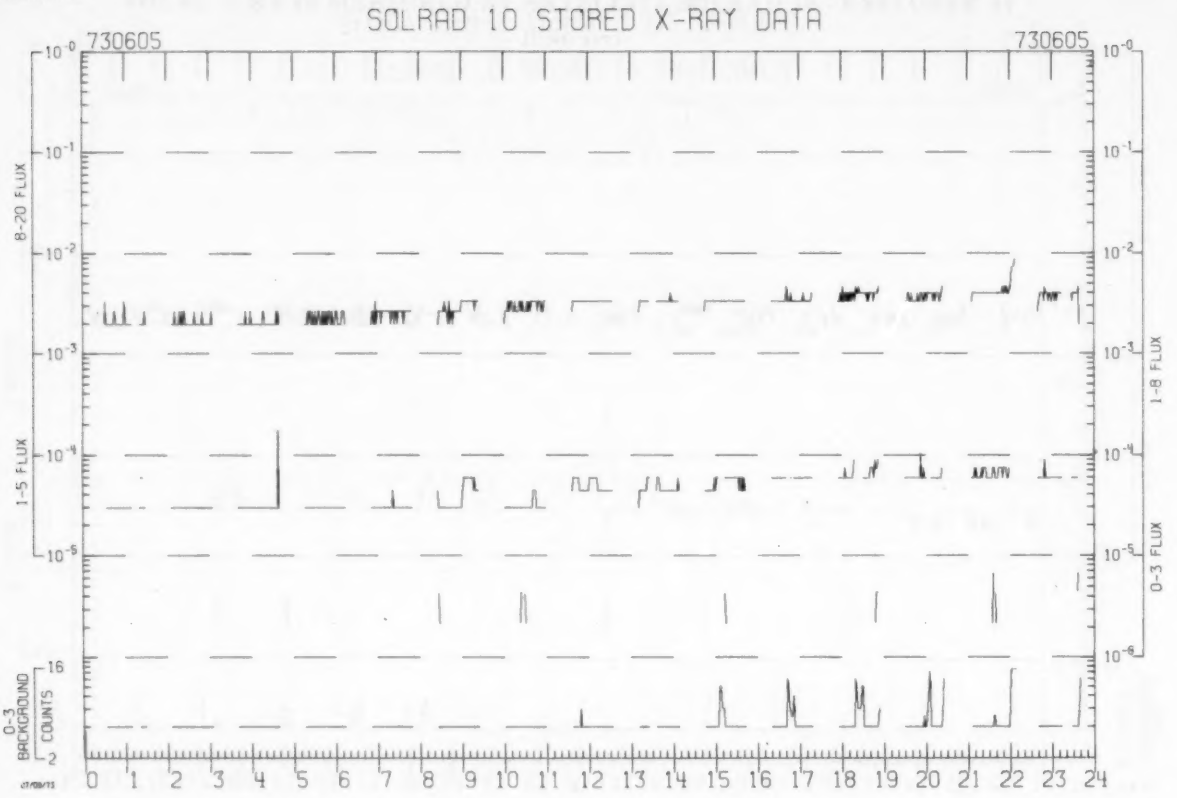


SOLRAD 10 STORED X-RAY DATA



SOLRAD 10 STORED X-RAY DATA

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730605
730605
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1-5 FLUX
1-8 FLUX
0-3 FLUX
0-3 BACKGROUND COUNTS
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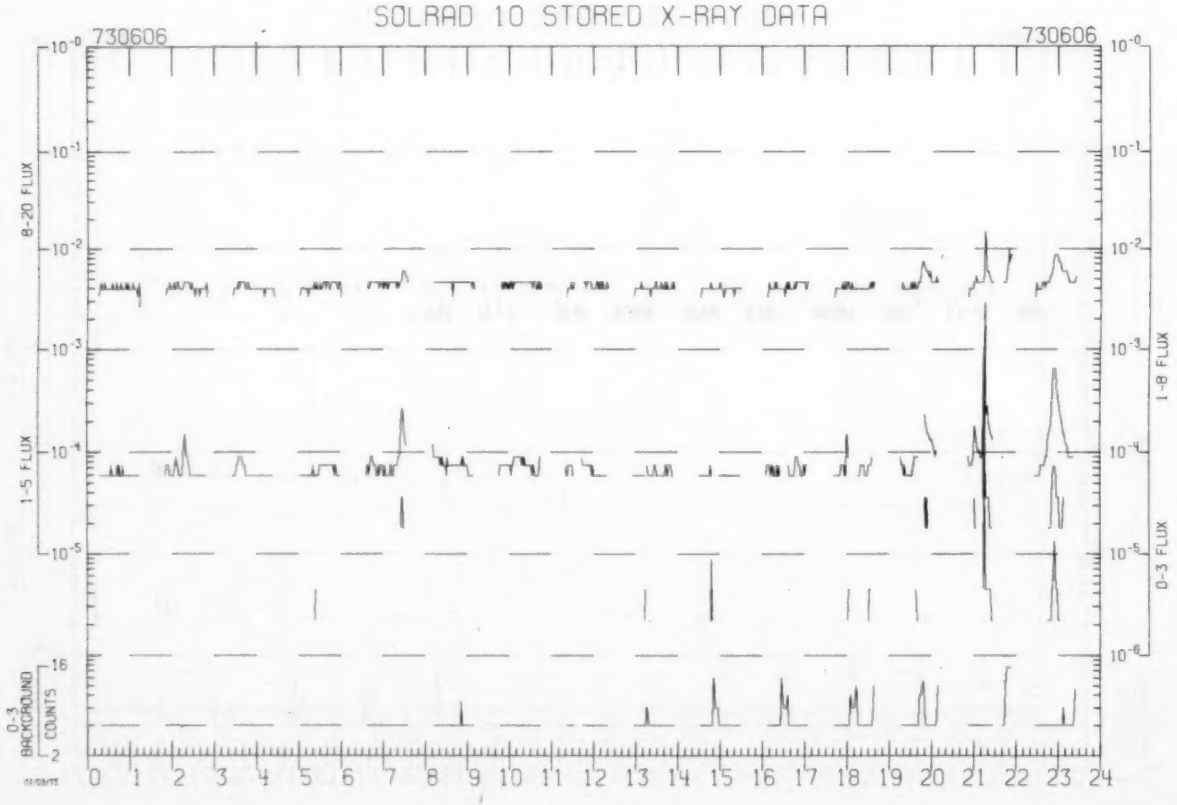
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730606
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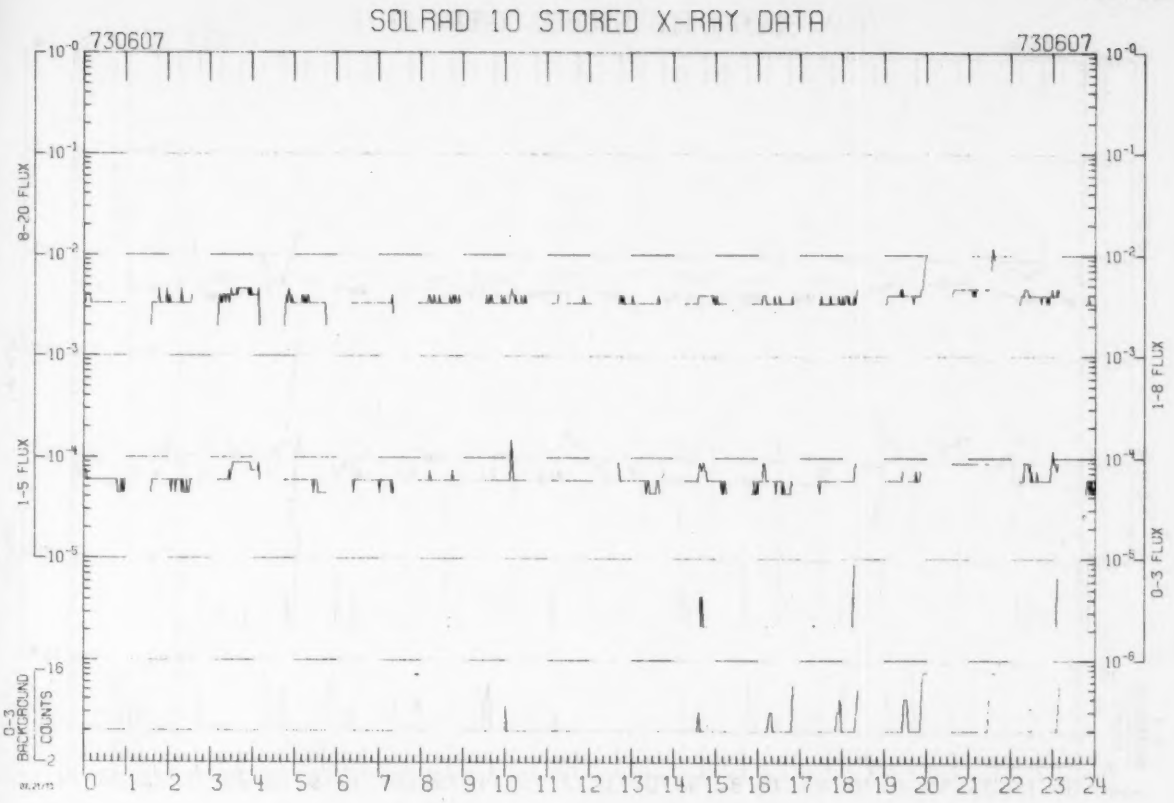
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1-8 FLUX
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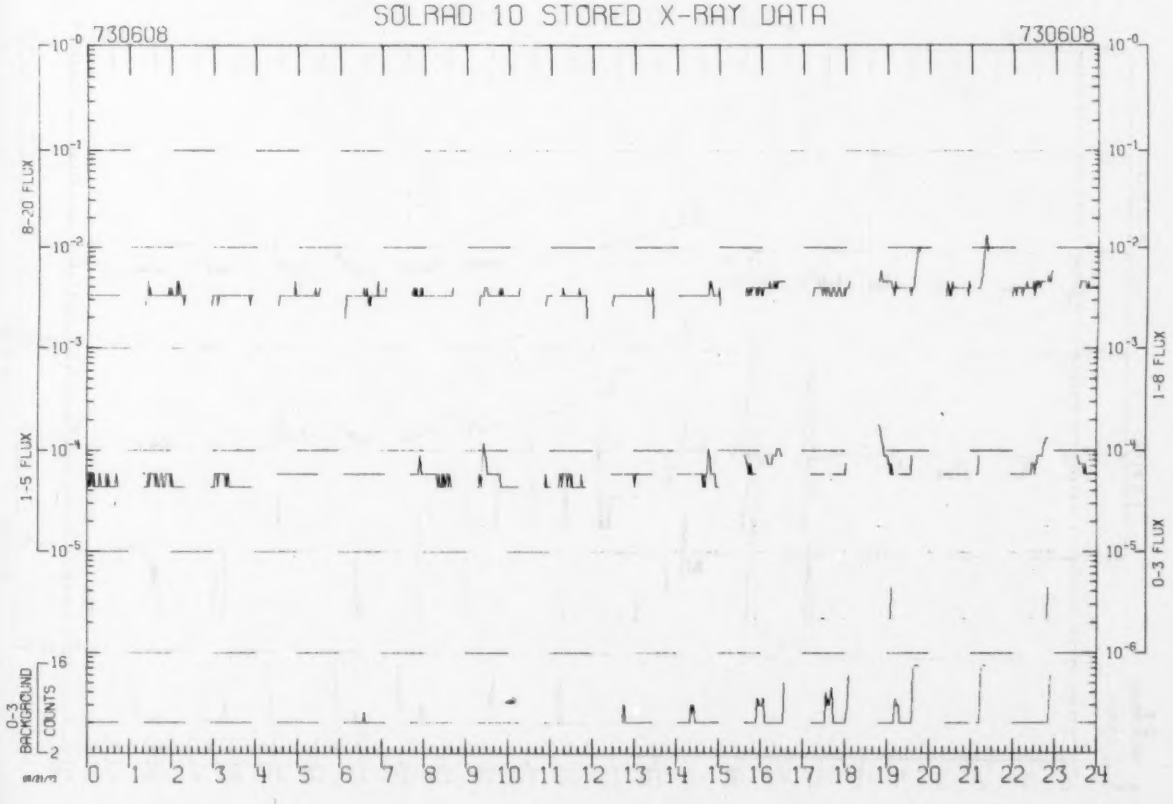
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730608
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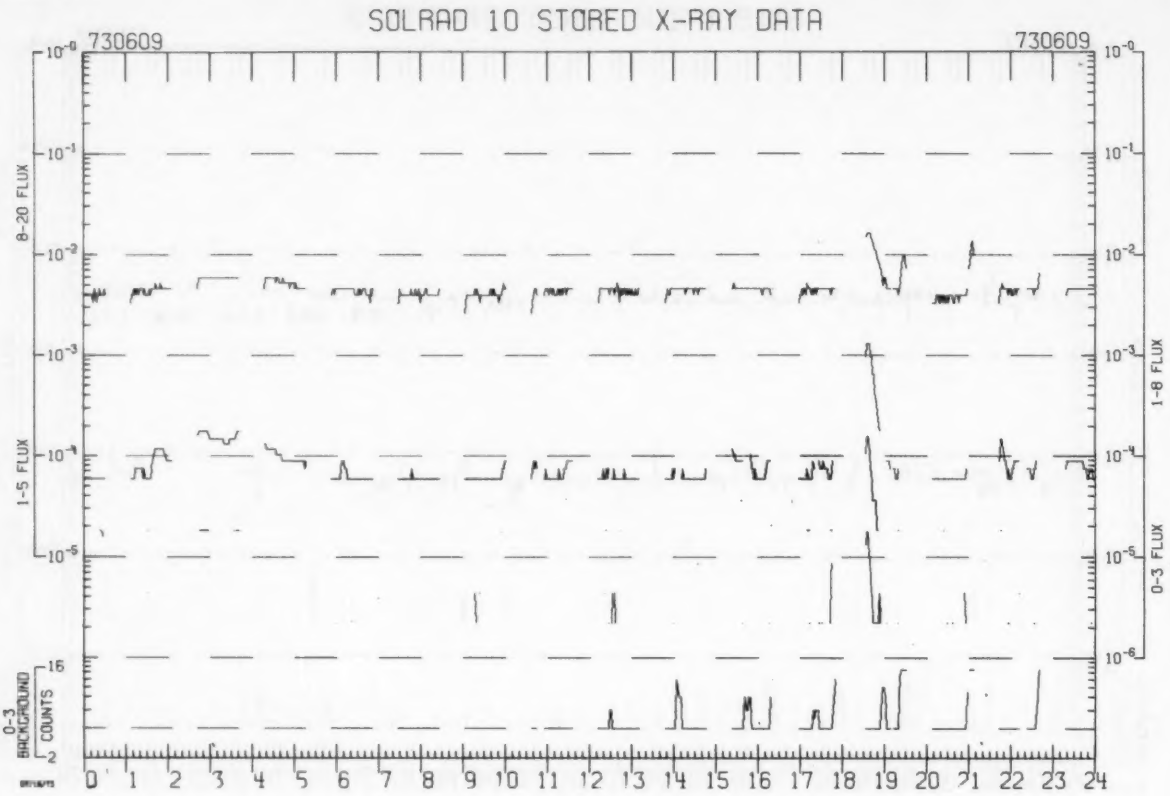
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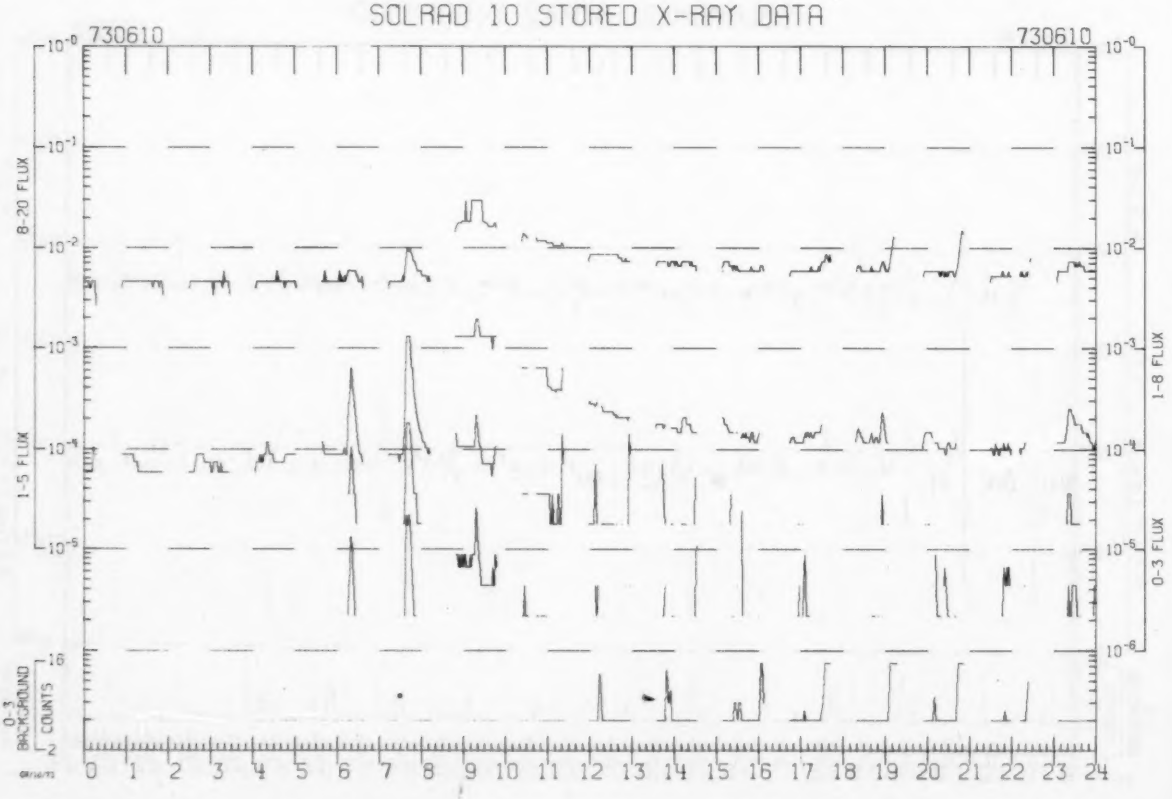
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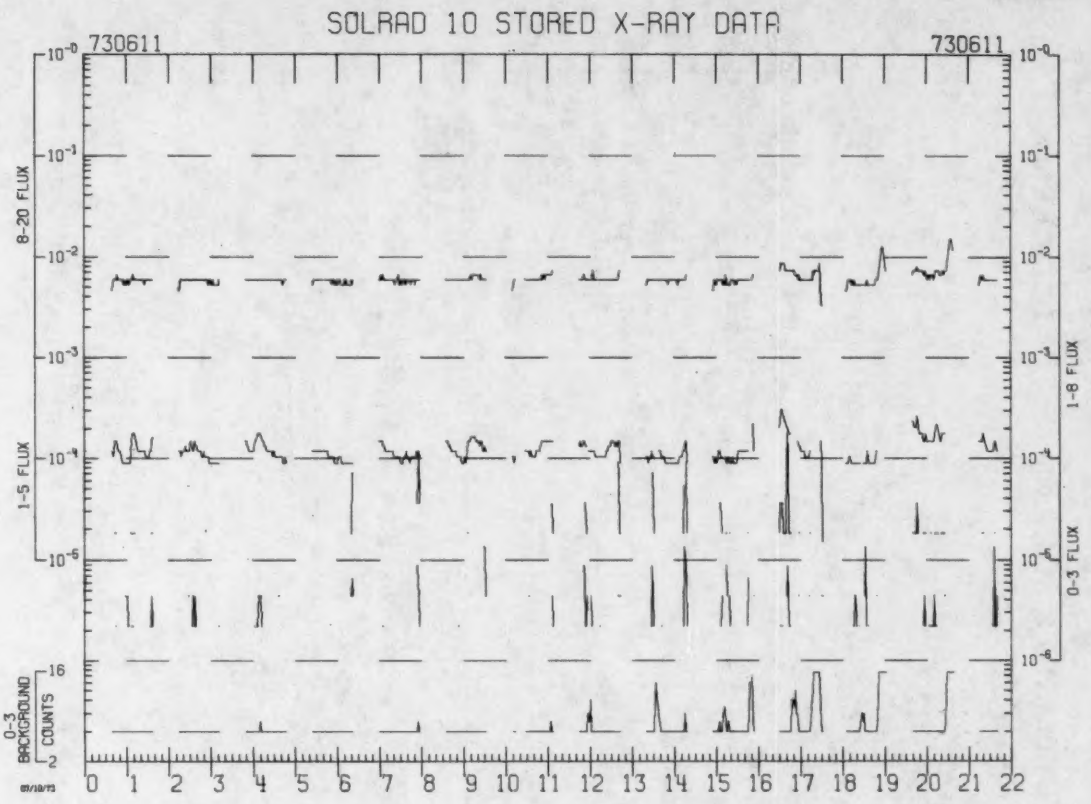
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16
2
09/10/73
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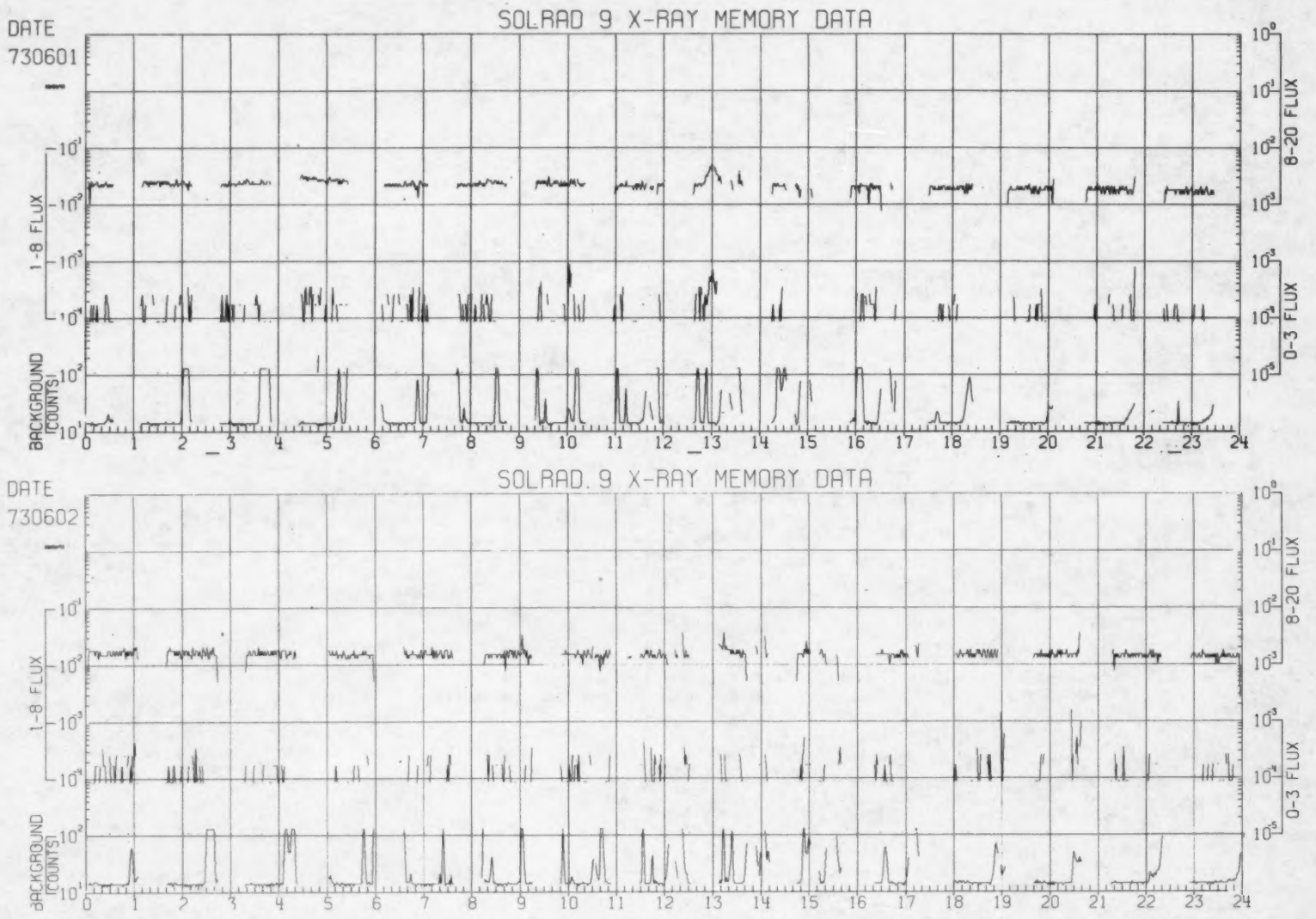
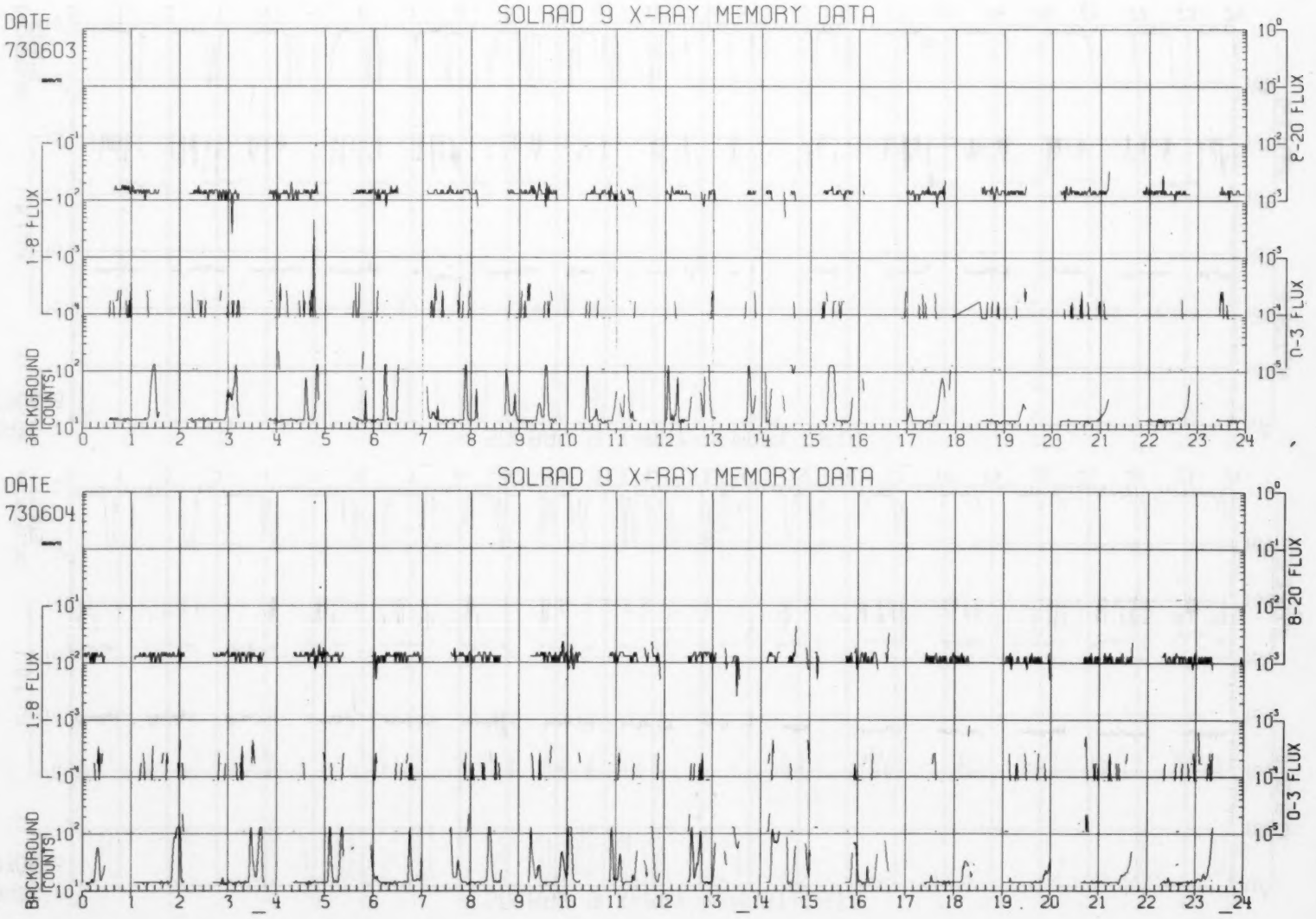
SOLAR X-RAYS MEASURED BY SATELLITE SOLRAD 9 - EXPLORER 37

JUNE 1973

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BACKGROUND (COUNTS)
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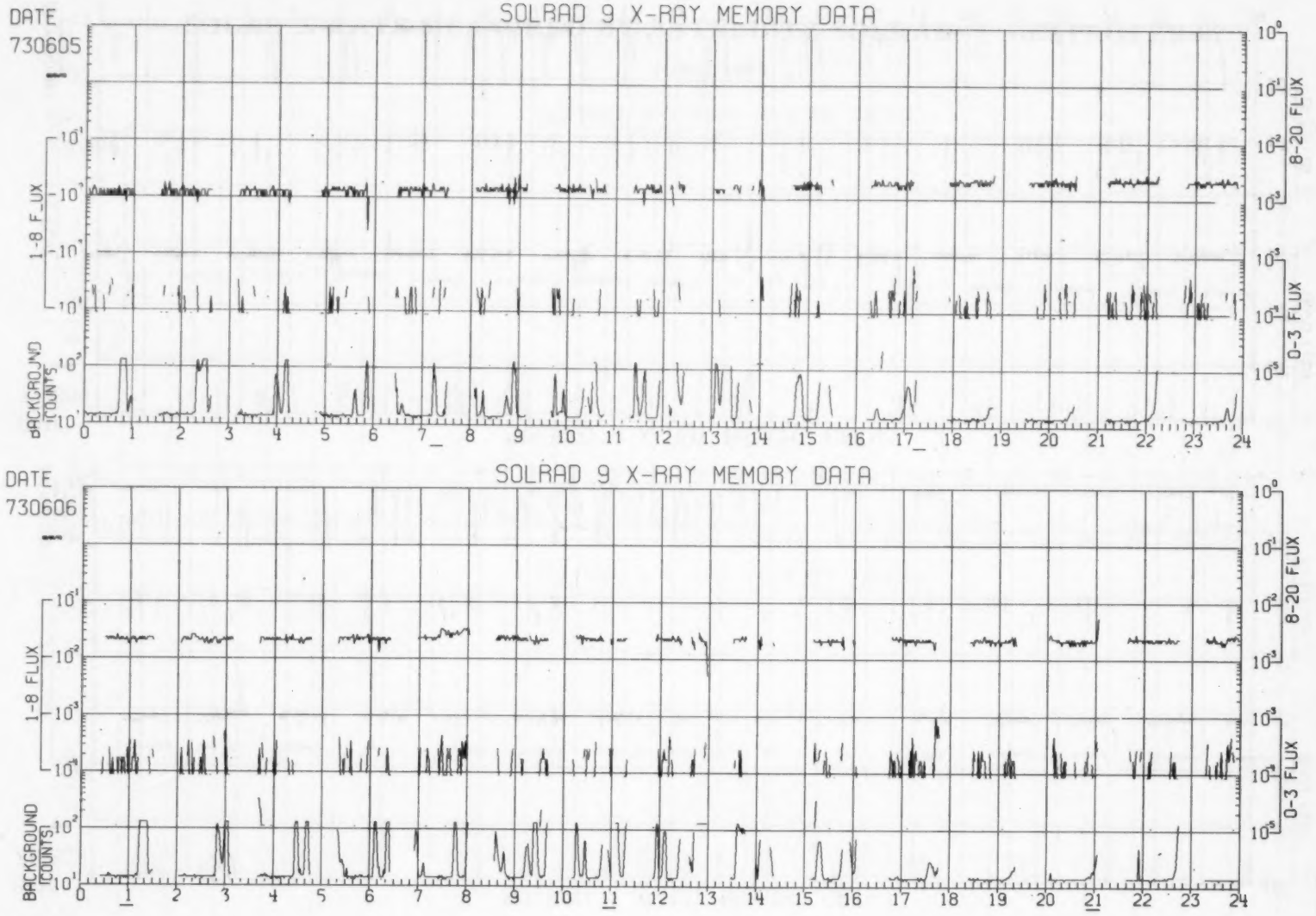
0-3 FLUX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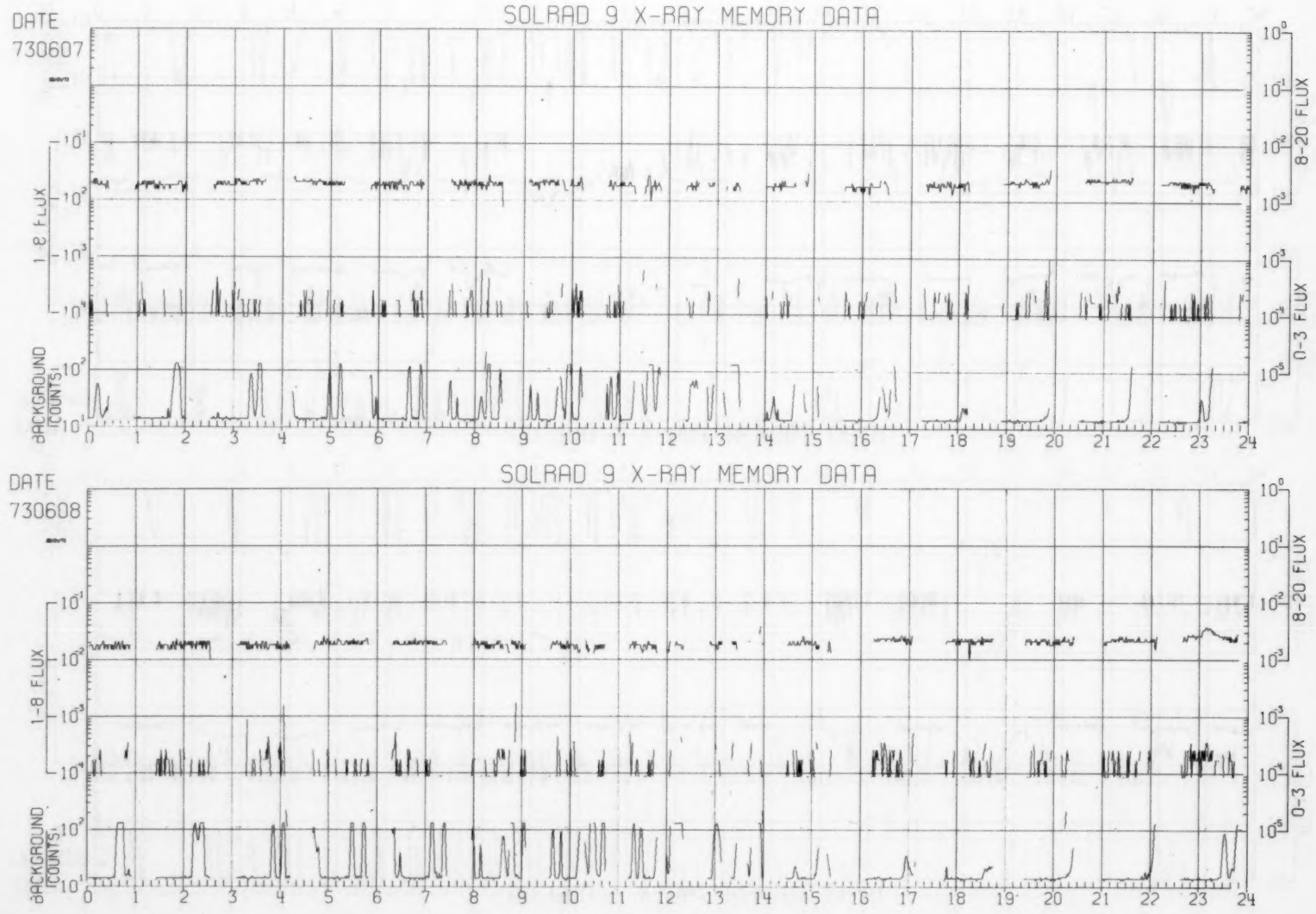
BACKGROUND (COUNTS)
8-20 FLUX
0-3 FLUX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DATE
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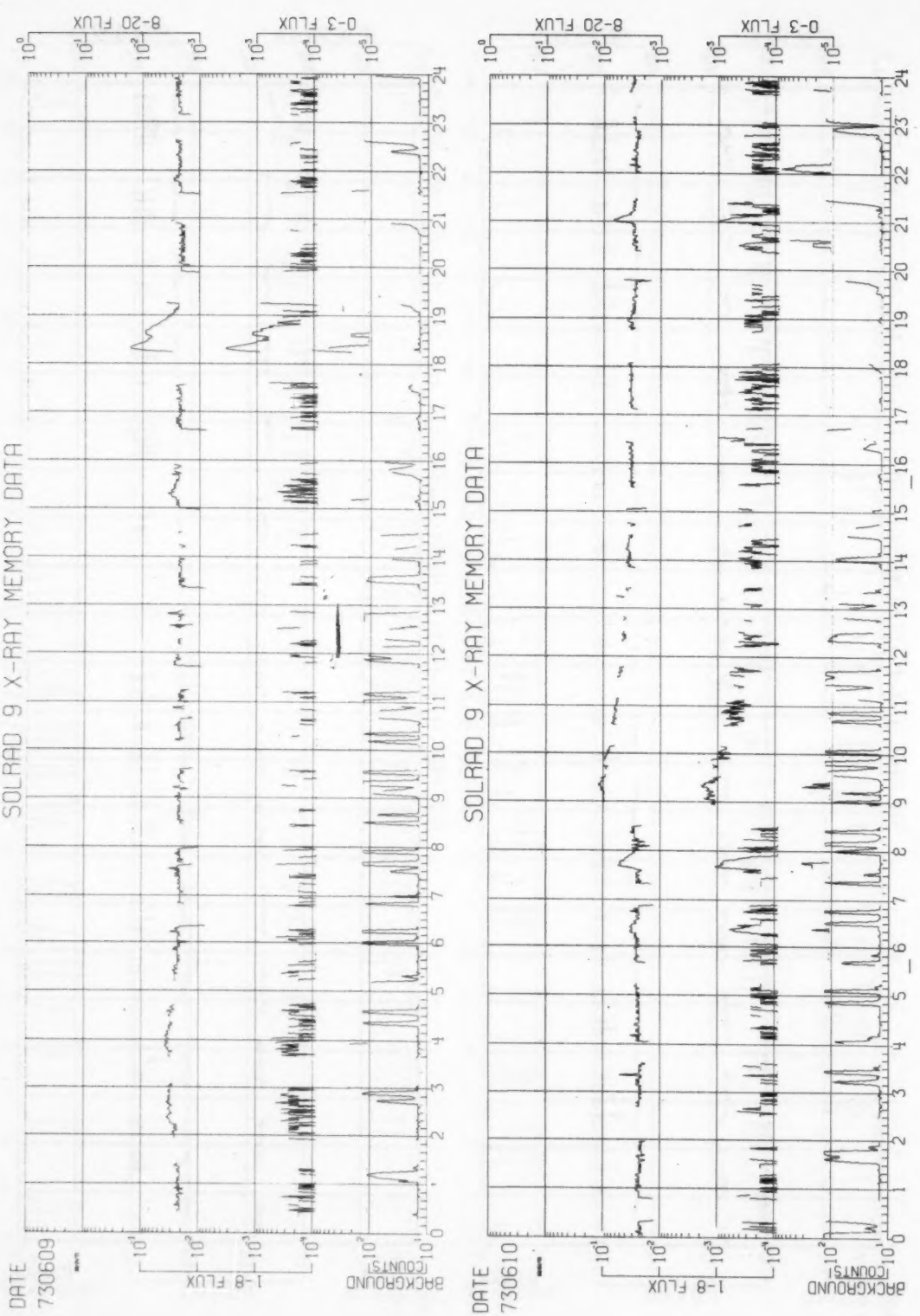
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BACKGROUND
[COUNTS]
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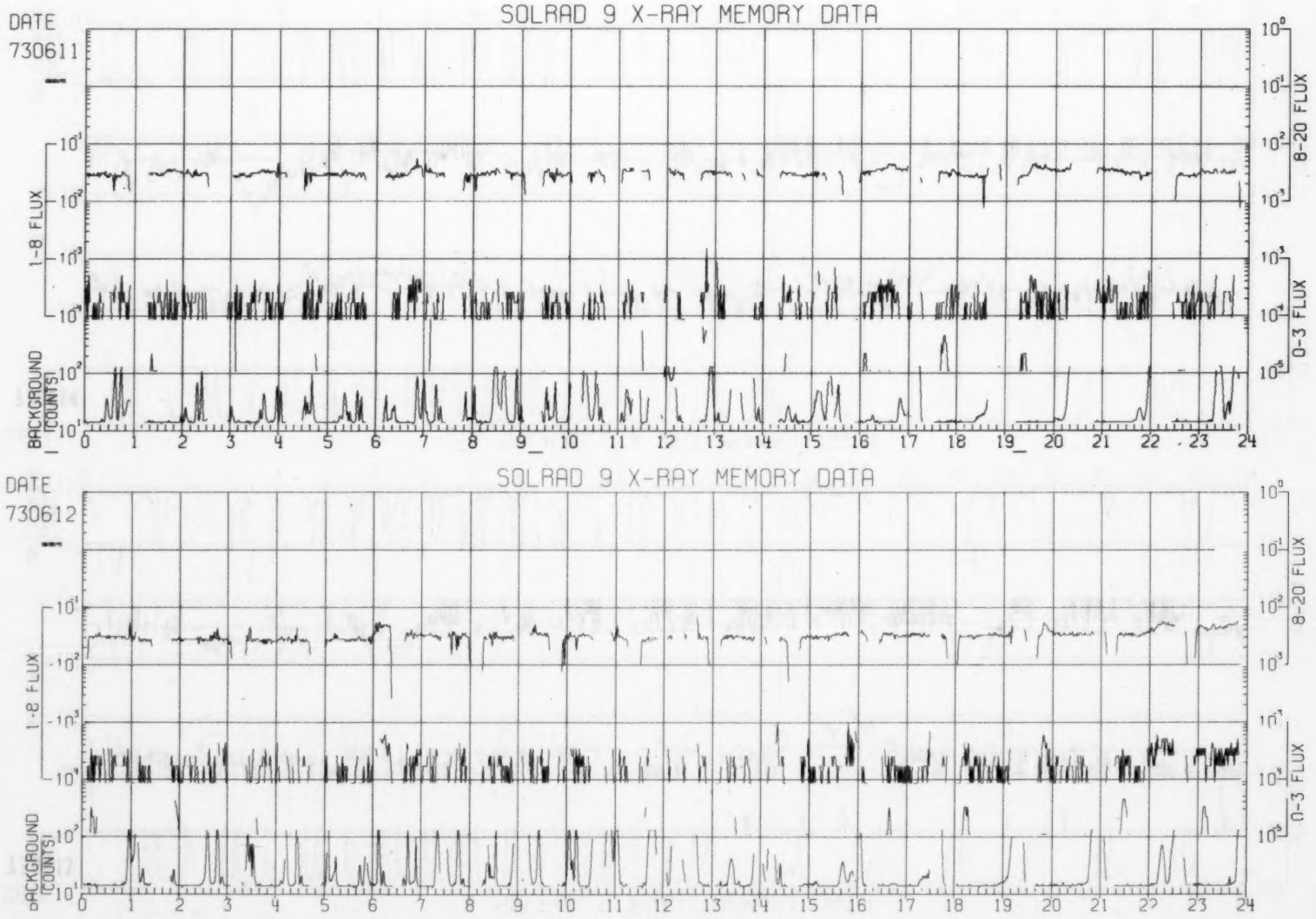
0-3 FLUX
8-20 FLUX
1-8 FLUX
BACKGROUND
[COUNTS]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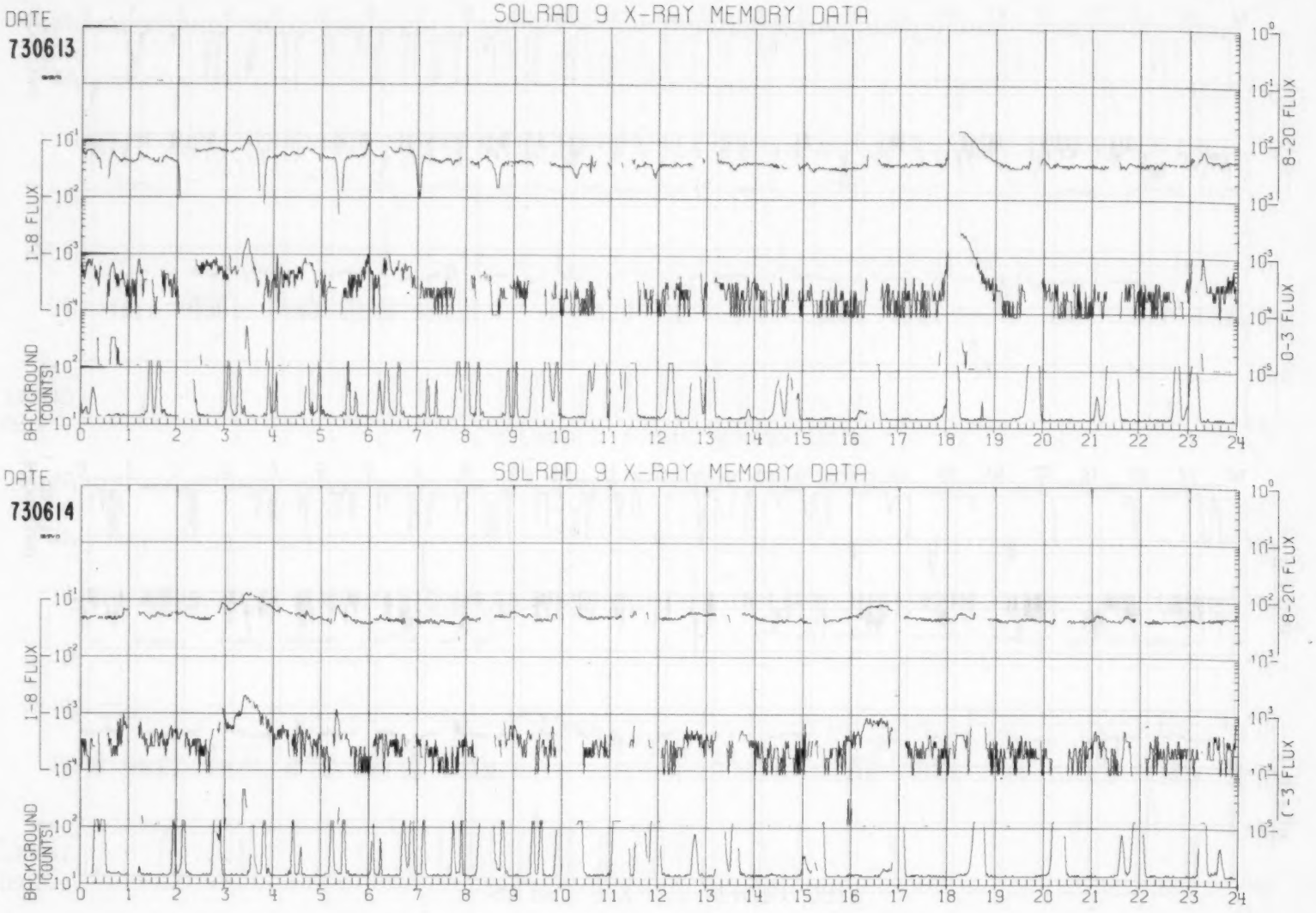
1-8 FLUX
BACKGROUND (COUNTS)
8-20 FLUX
0-3 FLUX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DATE
730614
SOLRAD 9 X-RAY MEMORY DATA
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0-3 FLUX
BACKGROUND (COUNTS)
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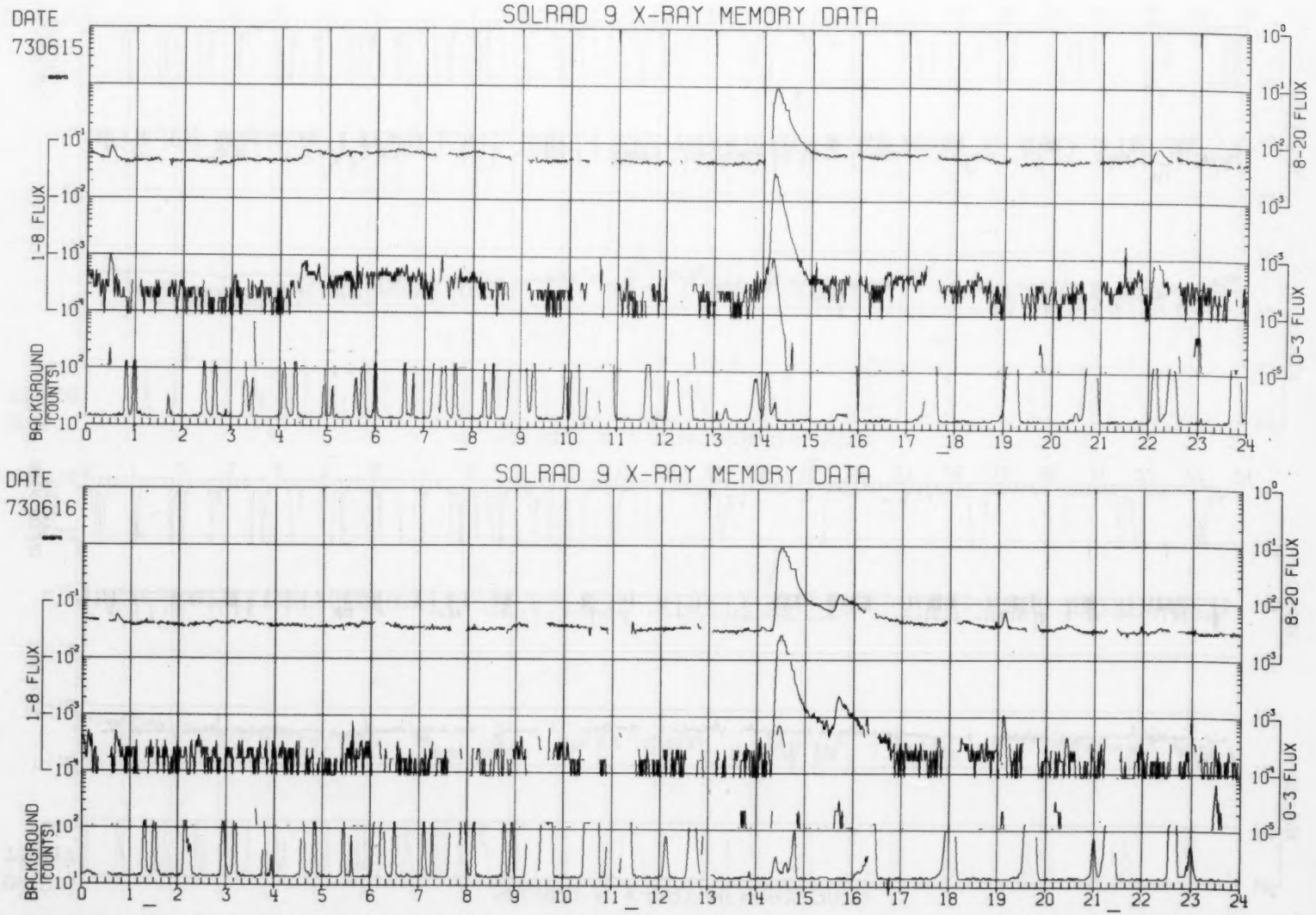
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BACKGROUND (COUNTS)
DATE
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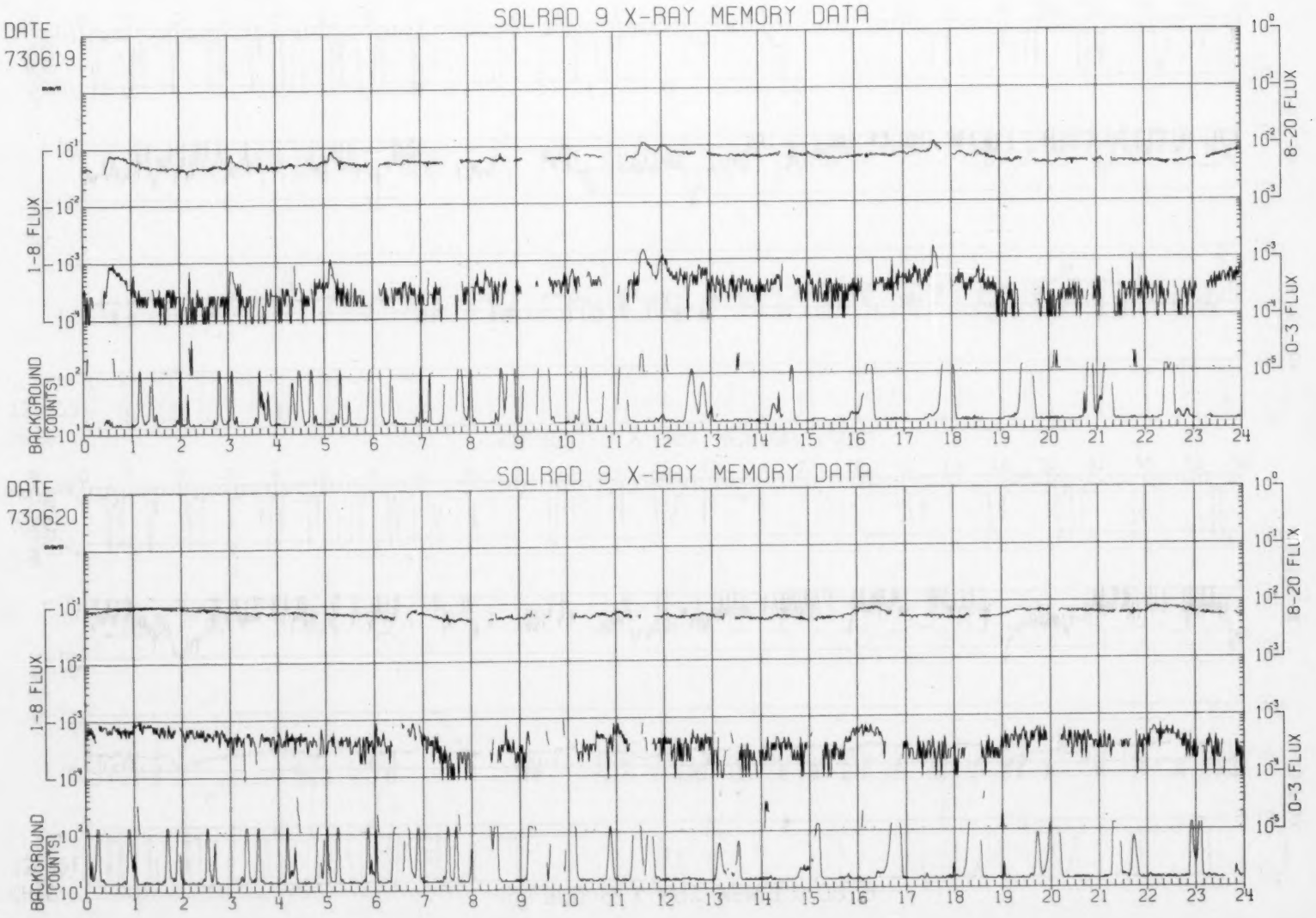
SOLRAD 9 X-RAY MEMORY DATA
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)

SOLRAD 9 X-RAY MEMORY DATA
DATE
730617
0-3 FLUX
8-20 FLUX
1-8 FLUX
BACKGROUND
(COUNTS)
SOLRAD 9 X-RAY MEMORY DATA
DATE
730618
0-3 FLUX
8-20 FLUX
1-8 FLUX
BACKGROUND
(COUNTS)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8-20 FLUX
0-3 FLUX
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1-8 FLUX
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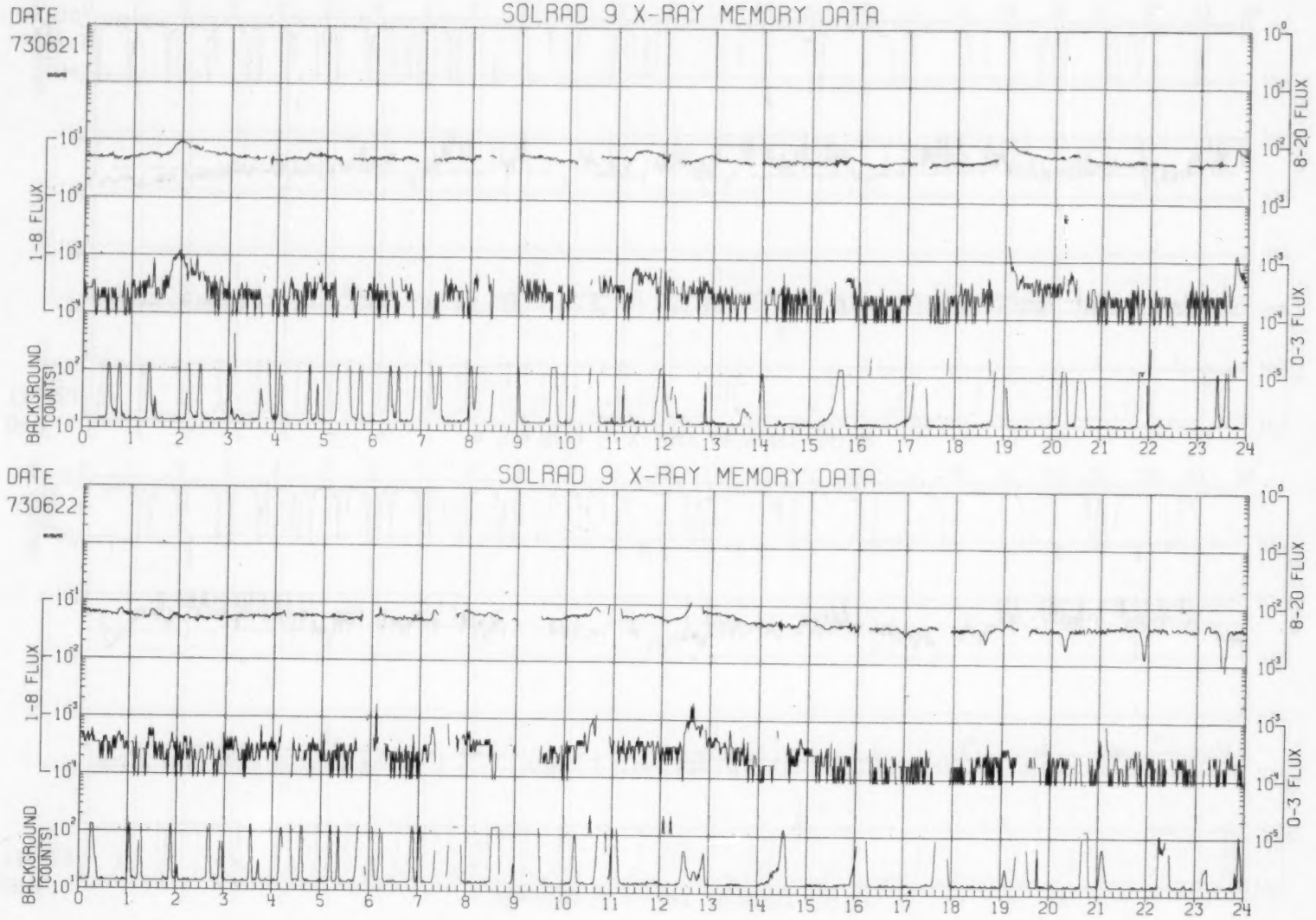
0-3 FLUX
BACKGROUND [COUNTS]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0-3 FLUX
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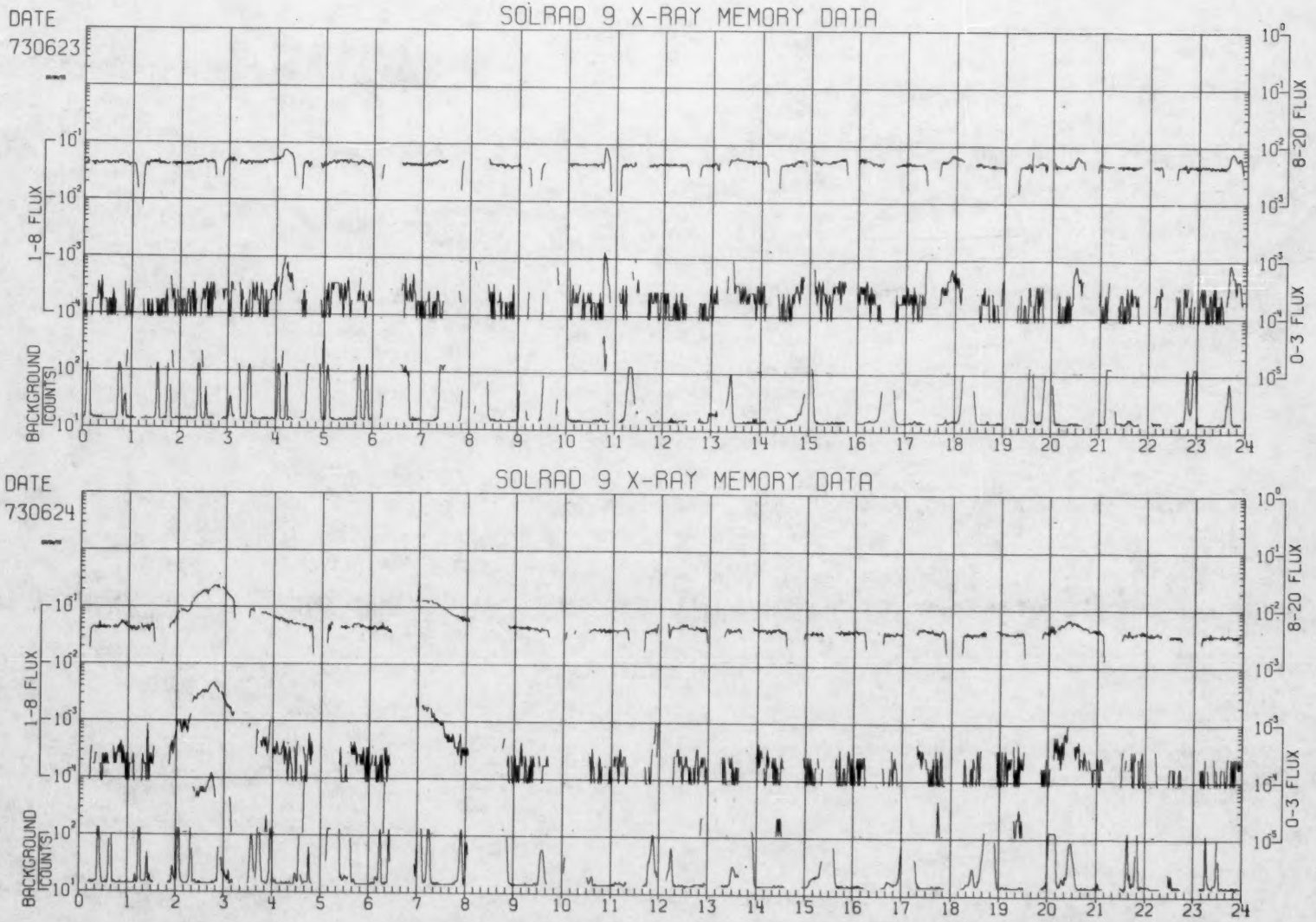
0-3 FLUX
BACKGROUND (COUNTS)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8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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DATE
730624
SOLRAD 9 X-RAY MEMORY DATA
1-8 FLUX
8-20 FLUX
0-3 FLUX
BACKGROUND (COUNTS)
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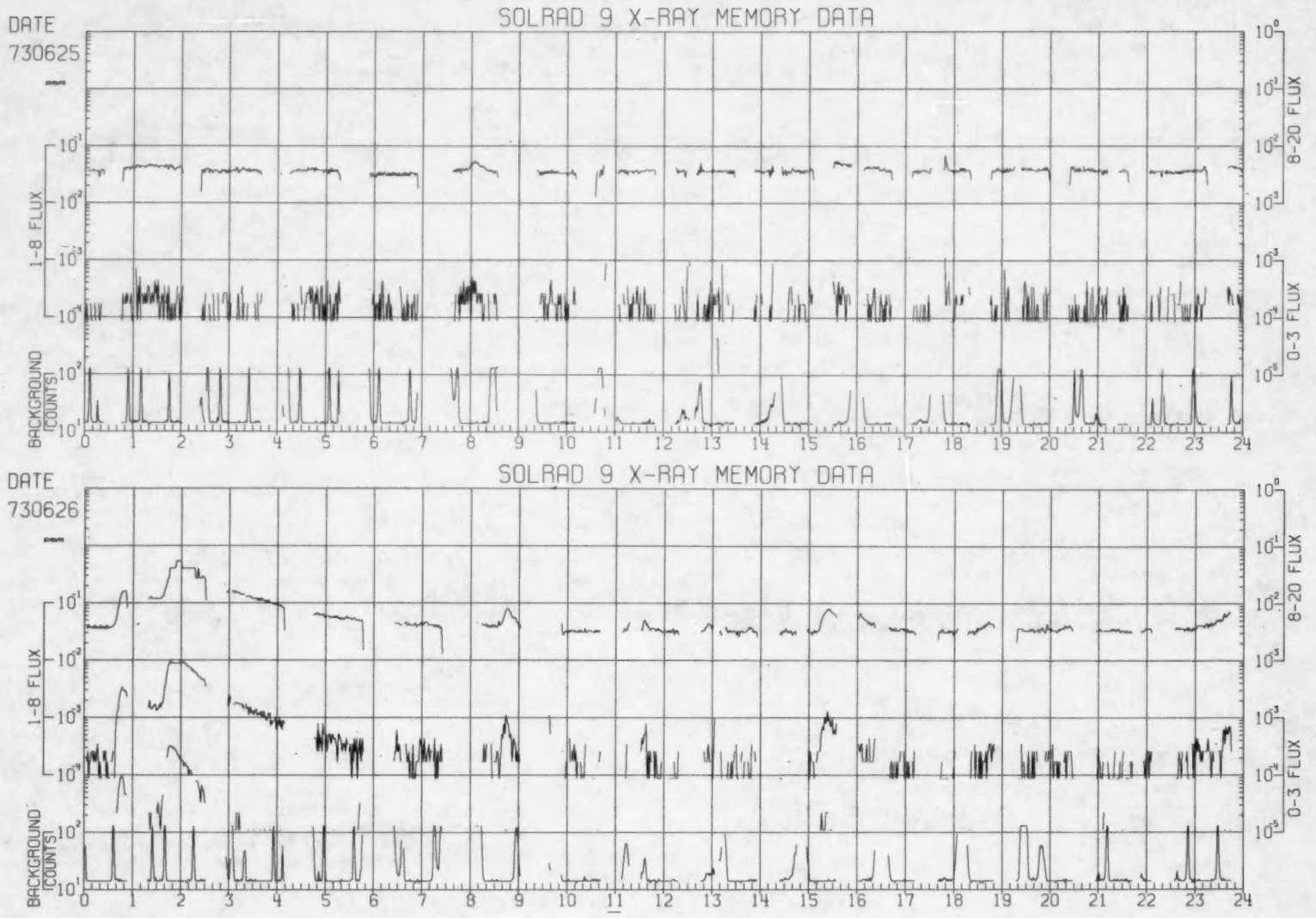
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8-20 FLUX
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BACKGROUND (COUNTS)
DATE
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1-8 FLUX
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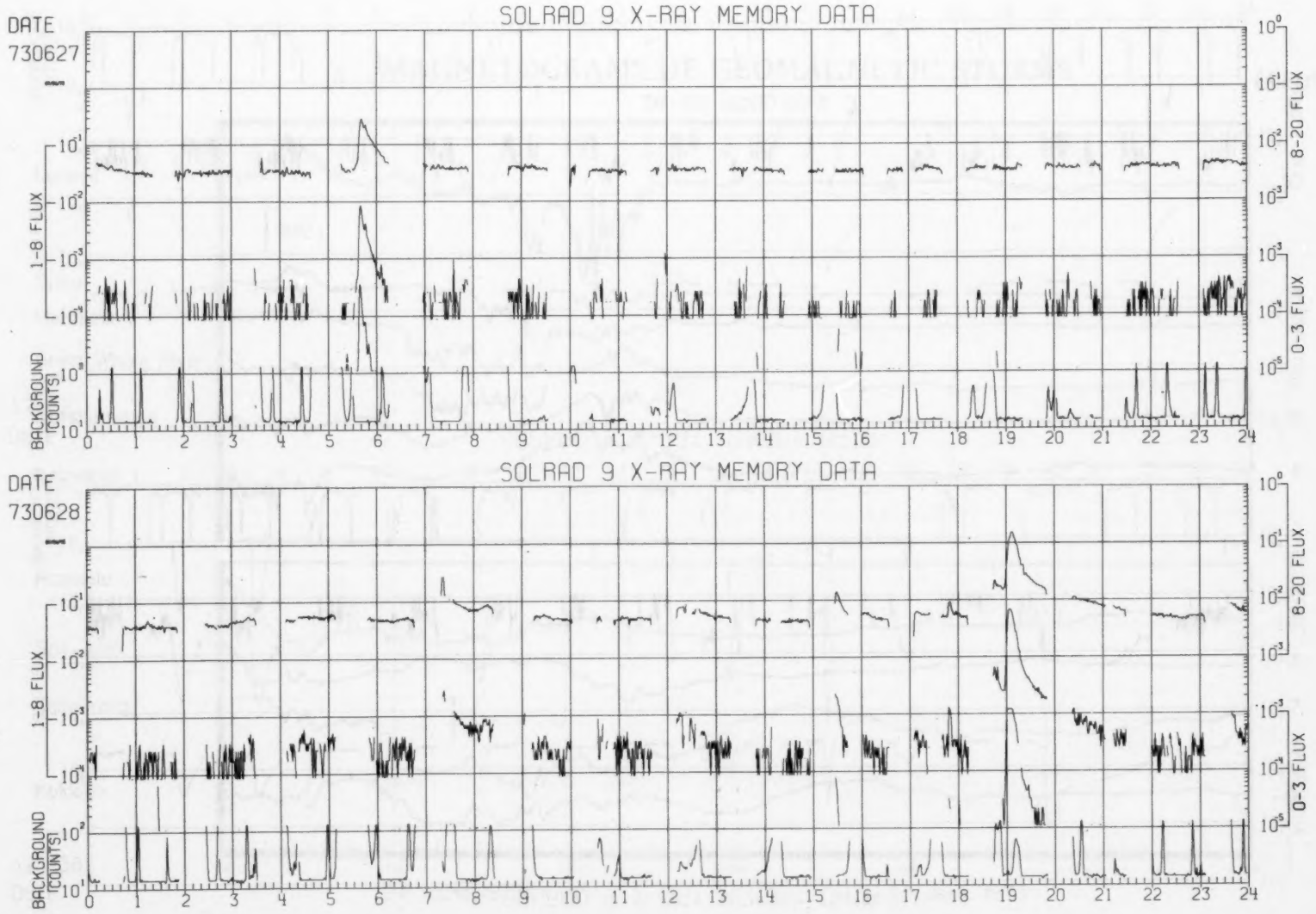
0-3 FLUX
BACKGROUND (COUNTS)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DATE
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1-8 FLUX
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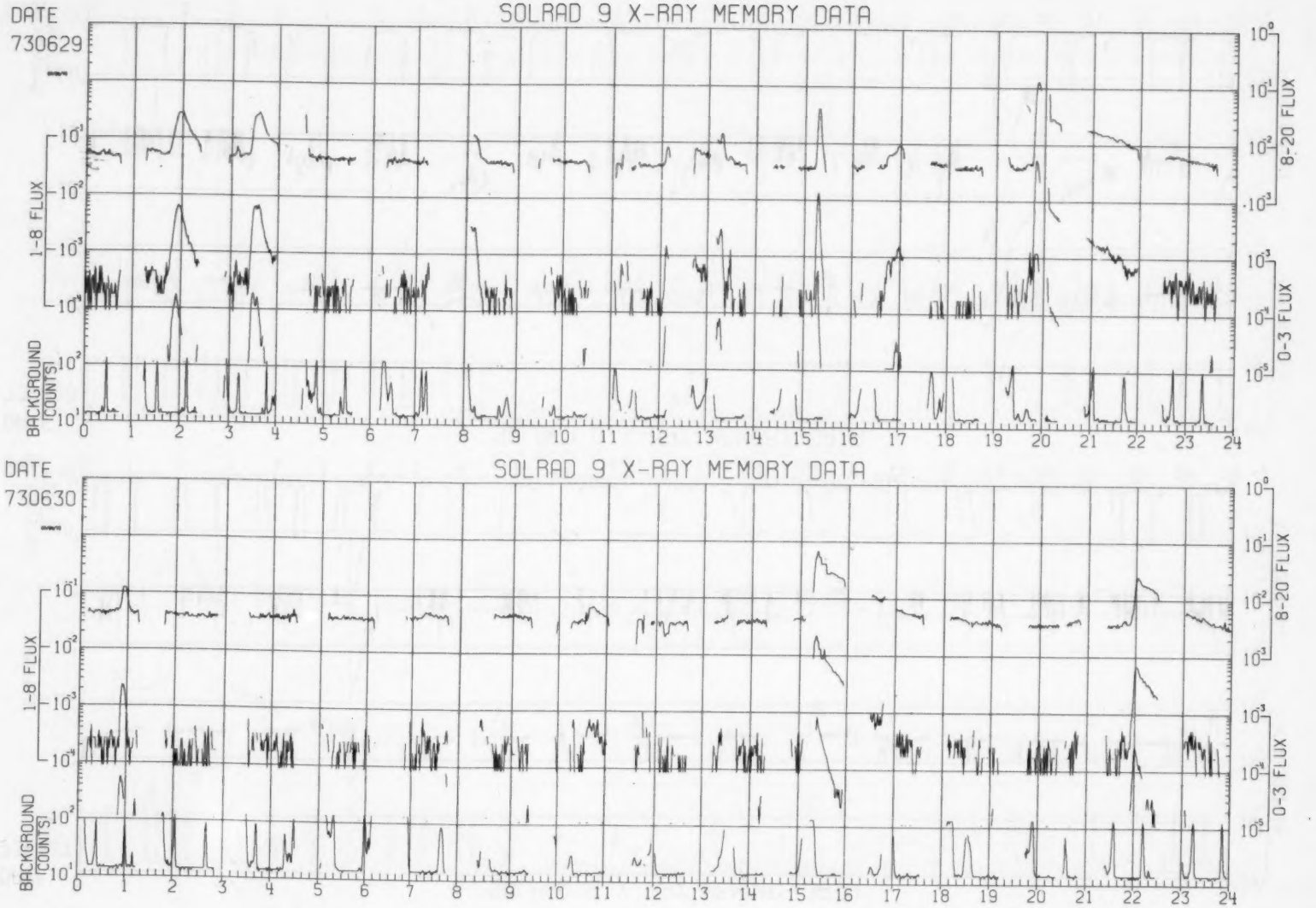
BACKGROUND [COUNTS]


DATE
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8-20 FLUX
0-3 FLUX
BACKGROUND [COUNTS]
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DATE
730630
SOLRAD 9 X-RAY MEMORY DATA
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8-20 FLUX
0-3 FLUX
BACKGROUND [COUNTS]
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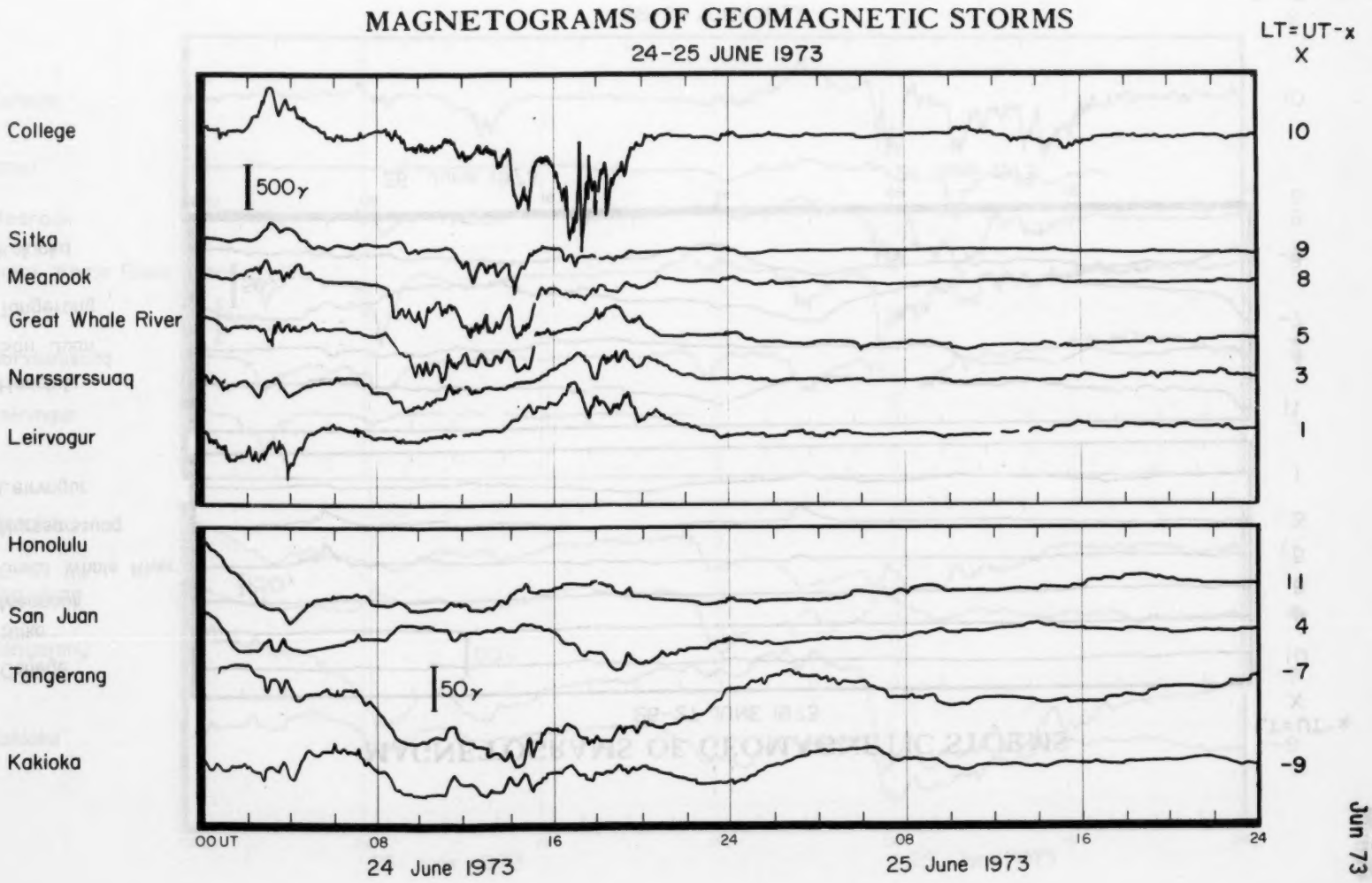
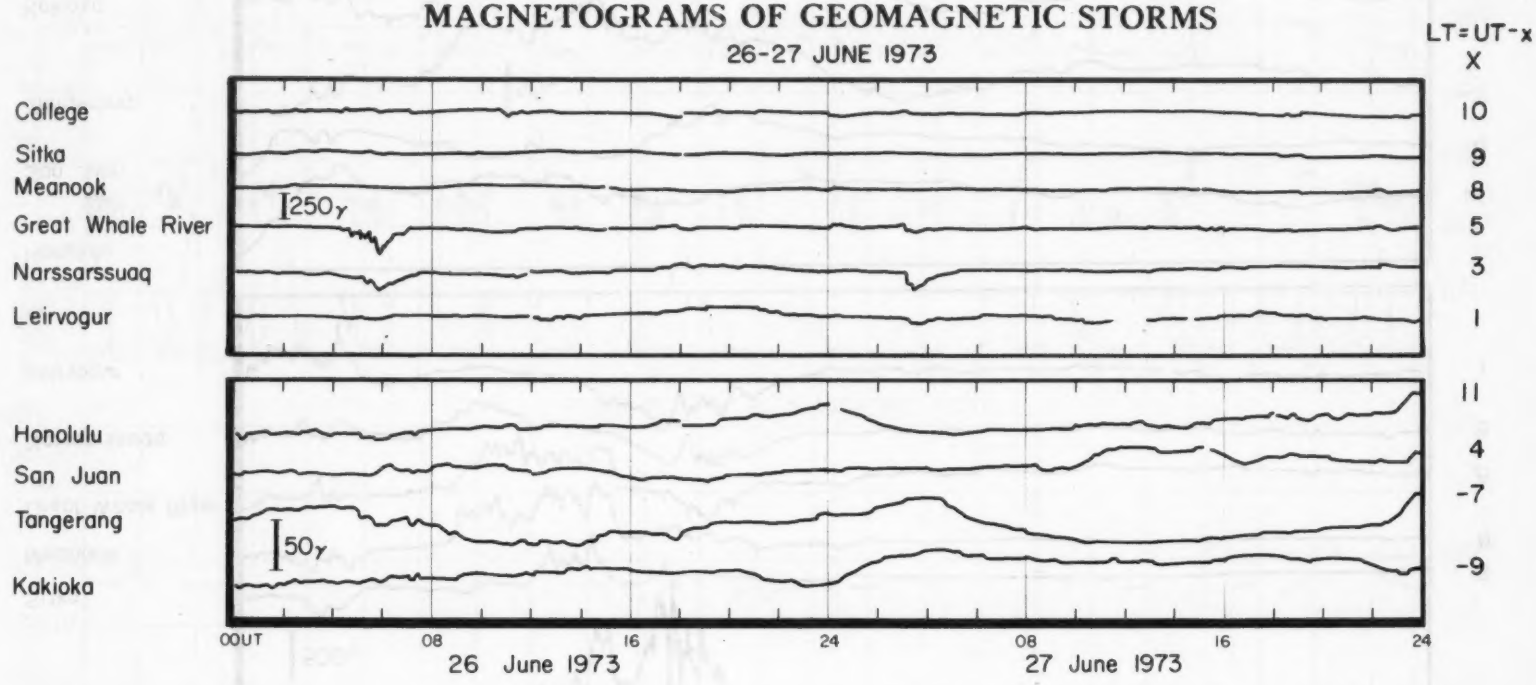
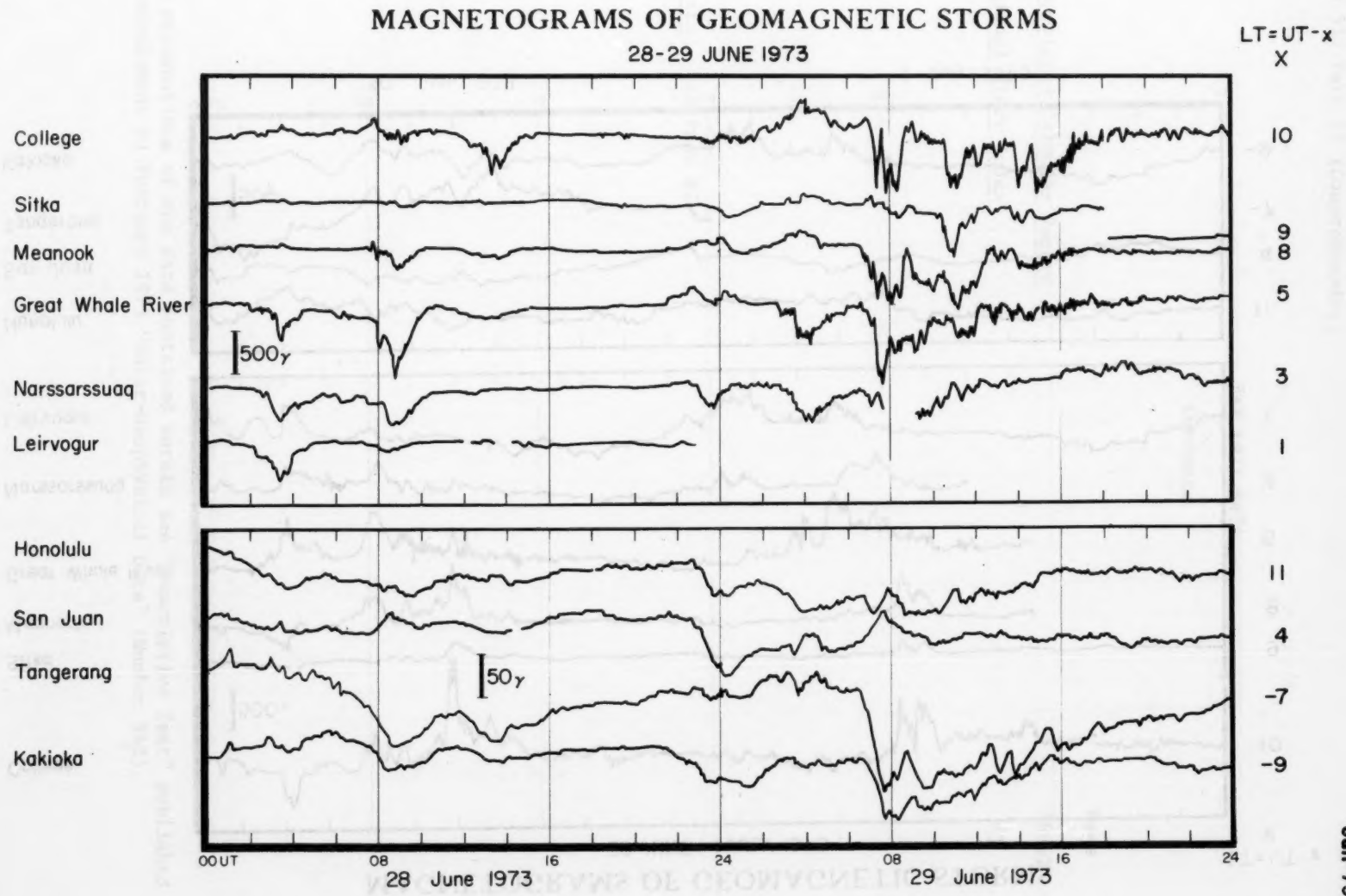

MAGNETOGRAMS OF GEOMAGNETIC STORMS
24-25 JUNE 1973
LT=UT-x
X
College
Sitka
Meanook
Great Whale River
Narssarssuaq
Leirvogur
Honolulu
San Juan
Tangerang
Kakioka
500γ
50γ
10
9
8
5
3
1
11
4
-7
-9
00 UT
08
16
24
08
16
24
24 June 1973
25 June 1973

MAGNETOGRAMS OF GEOMAGNETIC STORMS

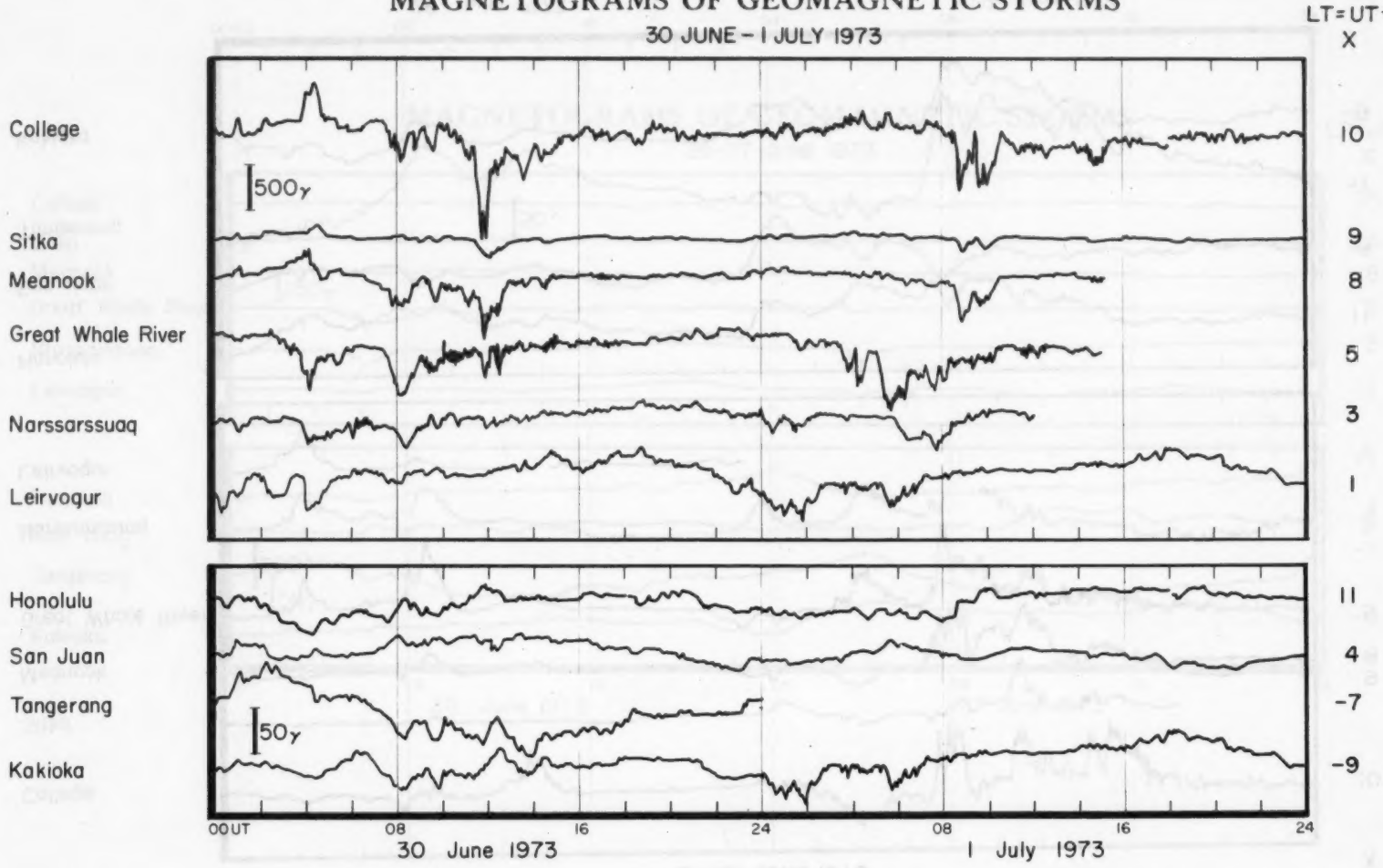
26-27 JUNE 1973




MAGNETOGRAMS OF GEOMAGNETIC STORMS
28-29 JUNE 1973
LT=UT-x
X
College
Sitka
Meanook
Great Whale River
Narssarssuaq
Leirvogur
Honolulu
San Juan
Tangerang
Kakioka
500γ
50γ
10
9
8
5
3
1
11
4
-7
-9
00 UT
08
16
24
08
16
24
28 June 1973
29 June 1973

MAGNETOGRAMS OF GEOMAGNETIC STORMS

30 JUNE – 1 JULY 1973



SGD 352 Part II (Comprehensive)

MAY 1973 DATA

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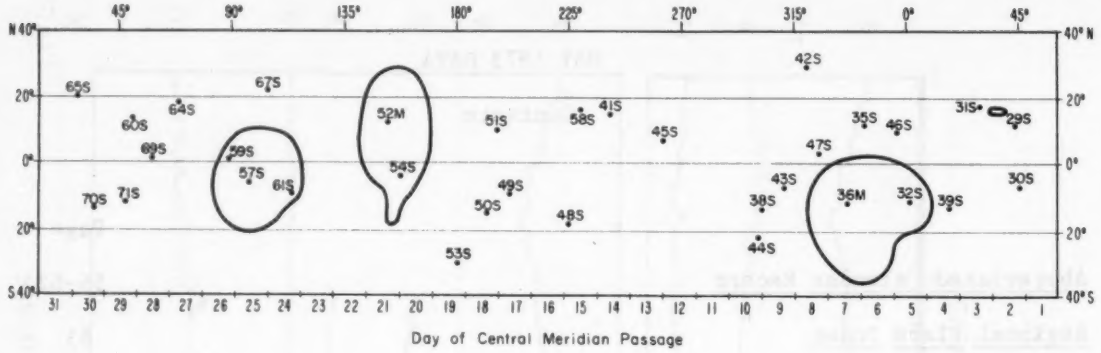
Errata: See Page 62

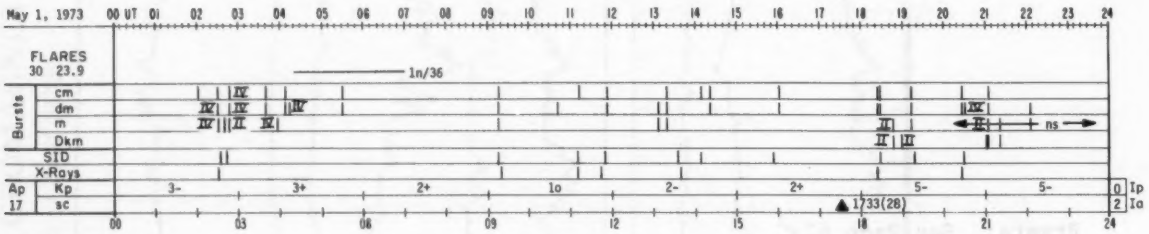
For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

ABBREVIATED CALENDAR RECORD

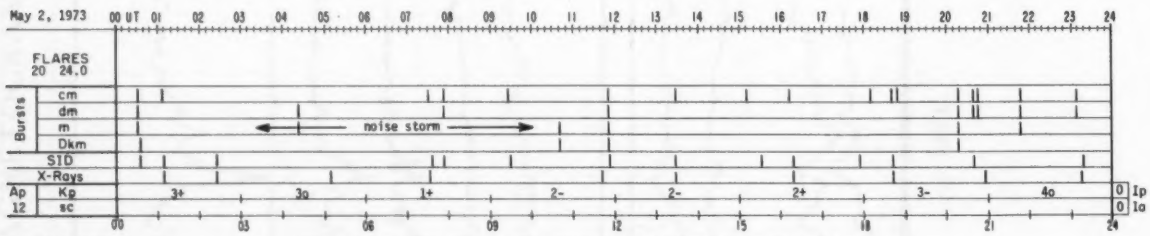
MAY 1973



Day of Central Meridian Passage

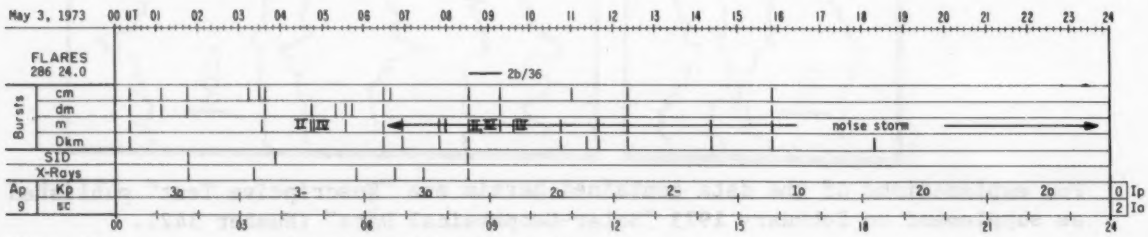


110 10 cm flux
24 Rz



113 10 cm flux
46 Rz
CMP (12330) S07
12329 N12 (2) (19167) N10 (ap)2

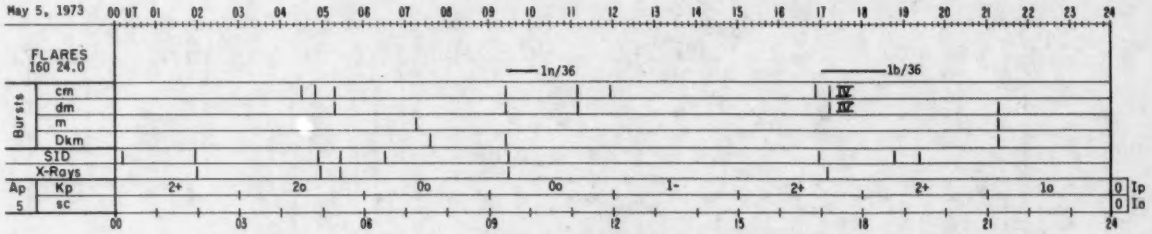
Moderately br. green corona 7 days earlier on NE limb and 7 days later on NW limb.



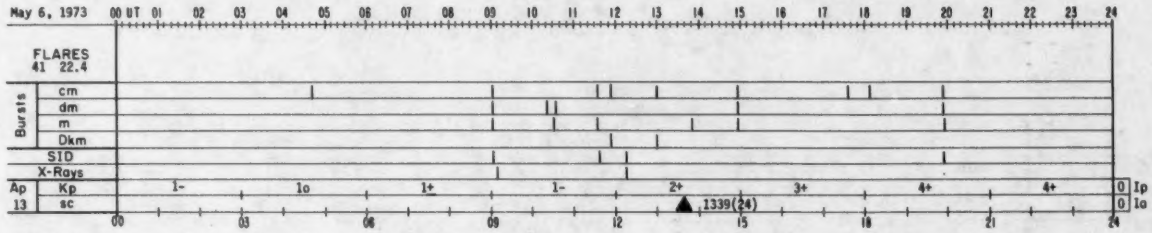
115 10 cm flux
64 Rz
CMP 12331 N18 (4) (19169) N18 α

No coronal data 7 days earlier on E. limb.

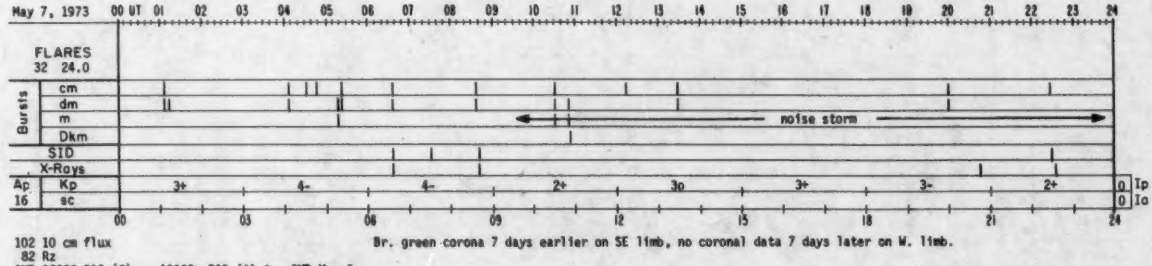
114 10 cm flux
77 Rz
CMP (12339) S13 (19173) S13 βp One of ten most magnetically quiet days; moderately br. green corona 7 days earlier on E. limb.



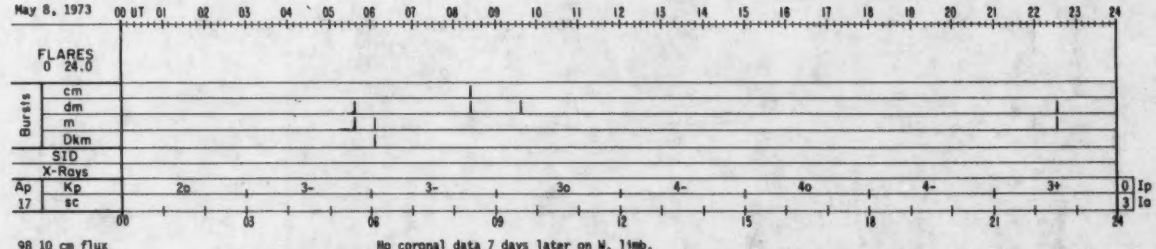
113 10 cm flux
92 Rz
CMP 12332 S11 (3) (19170) S05 (αp)2 CMP May 6
(19175) S11 (βp 1
(12346) N10
One of ten most magnetically quiet days; br. green corona 7 days later on W. limb.



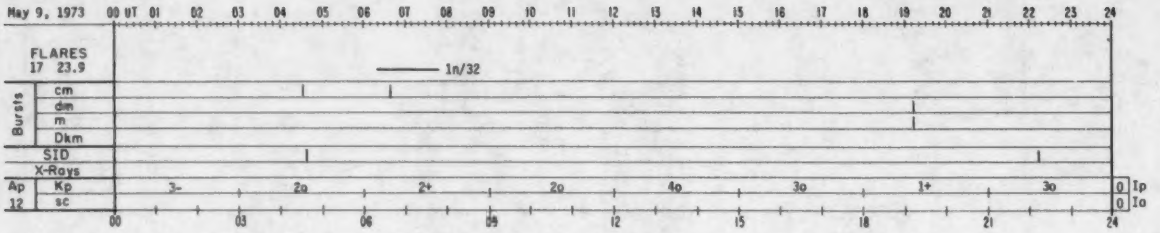
108 10 cm flux
68 Rz
CMP 12335 N12 19176 N14 (βp)3 CMP May 7
(19178) N12 βp
No coronal data 7 days earlier on E. limb, very br. green corona 7 days later on SW limb and moderately br. green corona 7 days later on NW limb.



102 10 cm flux
82 Rz
CMP 12336 S12 (2) 19168 S15 (δ) 4 CMP May 6
(19171) S13 β CMP May 8
19172 S13 (βp)4
(19179) S15 α
Br. green corona 7 days earlier on SE limb, no coronal data 7 days later on W. limb.

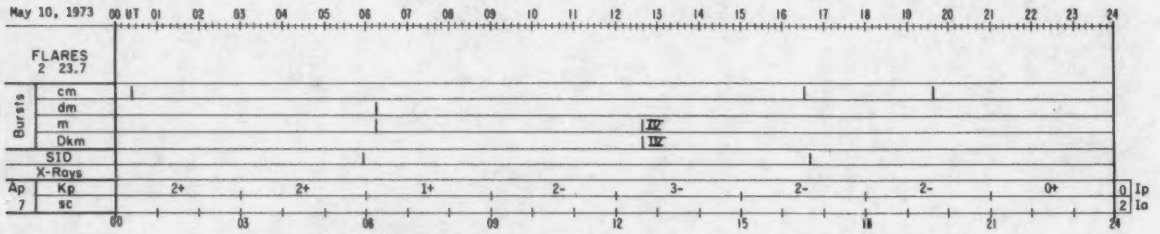


98 10 cm flux
52 Rz
CMP (12347) N03
(12342) N29
No coronal data 7 days later on W. limb.



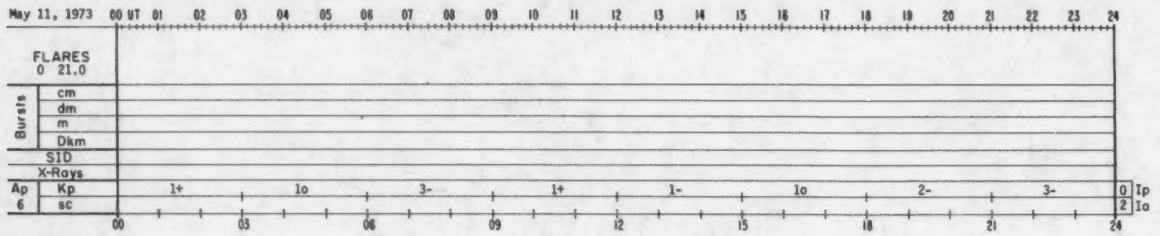
93 10 cm flux
30 Rz
CMP (12343) S07 19177 S06 (β)1

No coronal data 7 days earlier on E. limb.



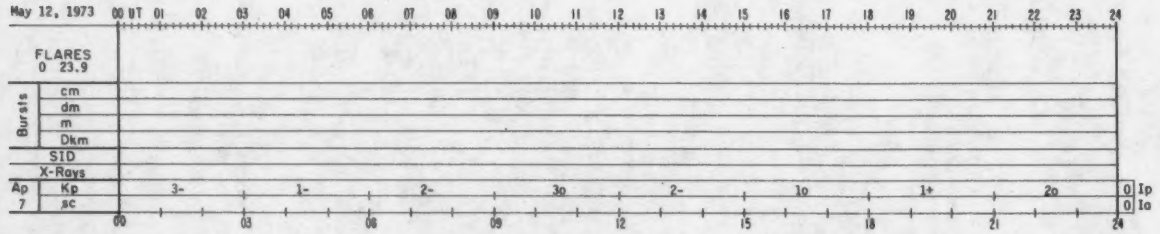
89 10 cm flux
25 Rz
CMP 12338 S13 (19174) S13 βp
(12344) S22

One of ten most magnetically quiet days; no coronal data 7 days later on W. limb.



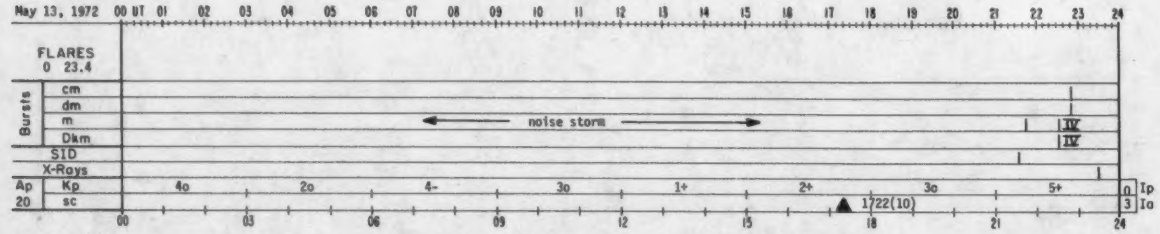
85 10 cm flux
26 Rz

One of ten most magnetically quiet days; no coronal data 7 days later on W. limb.



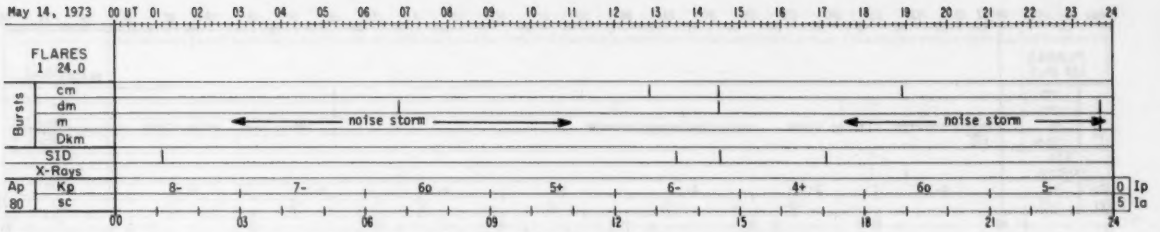
85 10 cm flux
18 Rz

One of ten most magnetically quiet days; no coronal data 7 days later on W. limb.



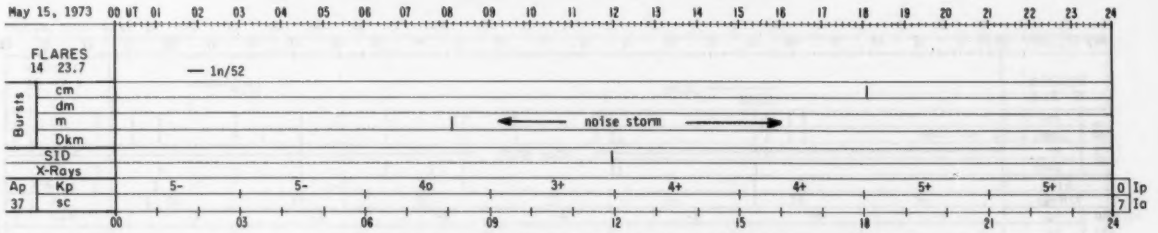
83 10 cm flux
7 Rz
CMP (12345) N06 19180 N05 (β)1 CMP May 12

Auroral rayed forms visible over British Isles at ϕ = 58° 2350-0100, but insufficient darkness for proper identification; no coronal data 7 days later on W. limb.



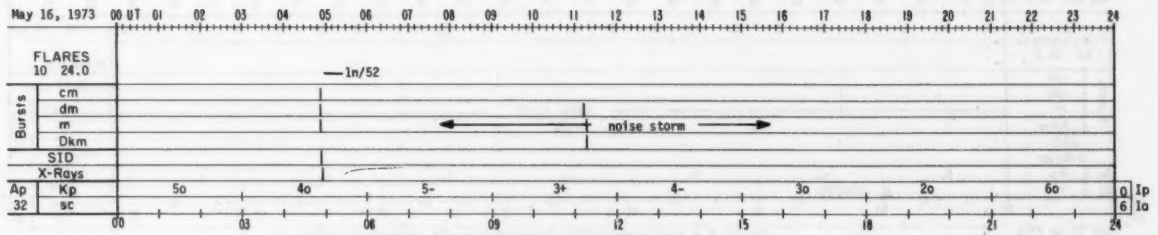
87 10 cm flux
7 Rz
CMP (12341) N15

One of five most magnetically disturbed days with moderate to moderately severe storm after sc on May 13; auroral rayed forms visible over British Isles at ϕ = 58° 0000-0100, but insufficient darkness for proper identification, ray to 90+° reported at ϕ = 58° 0130; no coronal data 7 days later at 270°-285° on W. limb.



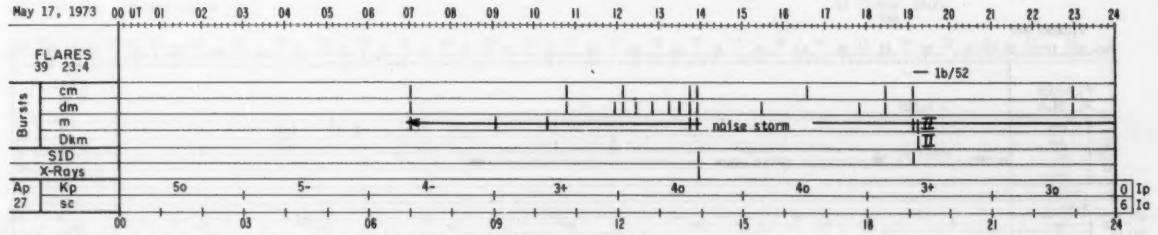
88 10 cm flux
25 Rz
CMP (12358) N16
(12348) S18

One of five most magnetically disturbed days with moderate activity continuing.



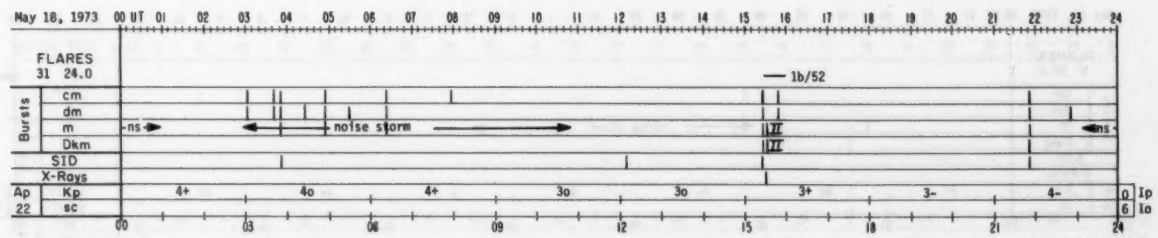
88 10 cm flux
33 Rz

One of five most magnetically disturbed days.

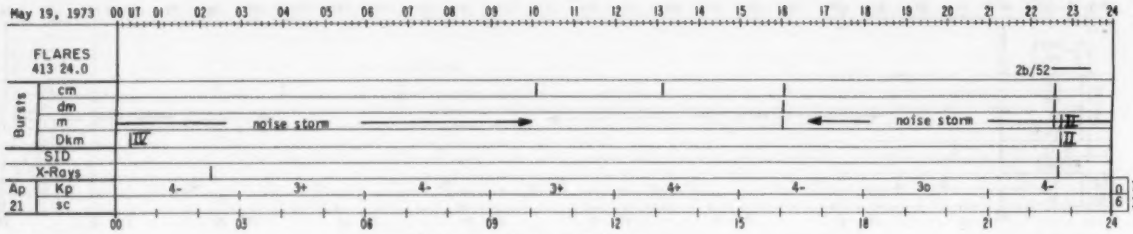


89 10 cm flux
34 Rz
CMP 12349 S09 19181 S10 (βp)4

One of five most magnetically disturbed days.

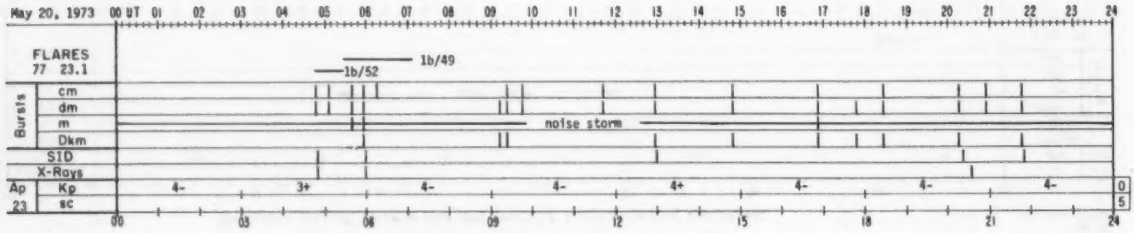


93 10 cm flux
41 Rz
CMP (12351) N10
12350 S15 (2) S11 (no obs. Mt. Wilson)



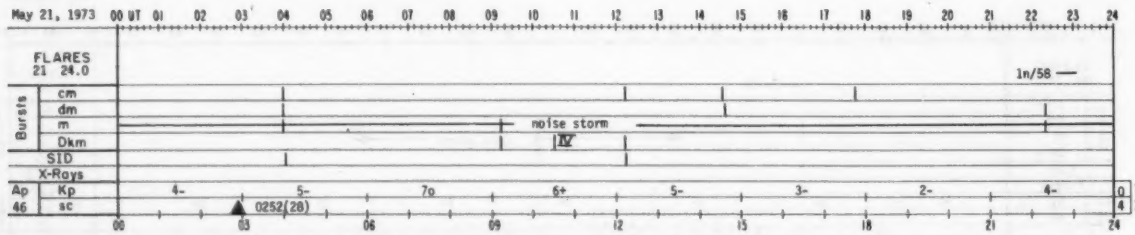
97 10 cm flux
42 Rz
CMP (12353) S30

No coronal data 7 days later on W. limb.



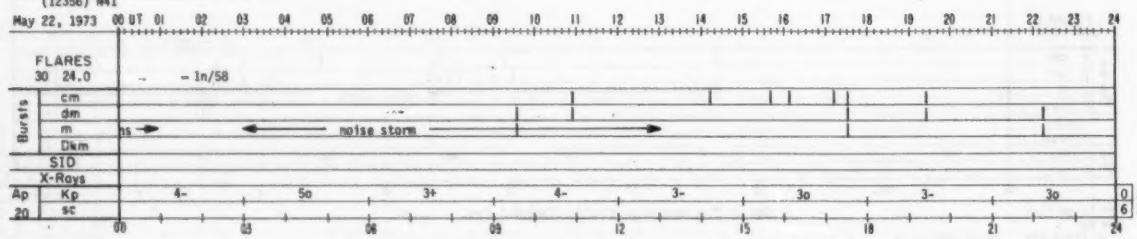
102 10 cm flux
32 Rz

Moderately br. green corona 7 days earlier on E. limb.



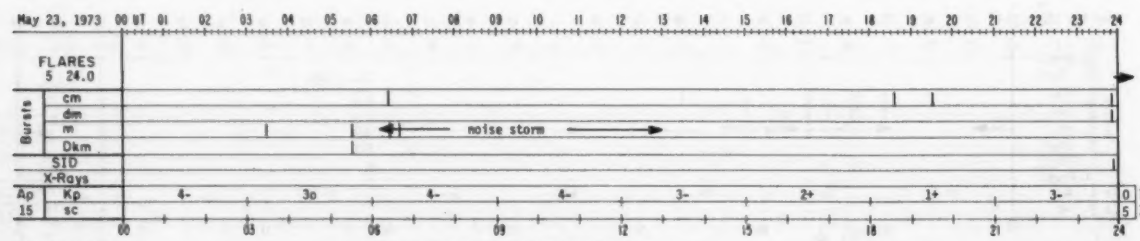
100 10 cm flux
52 Rz
CMP 12354 S04 (19184) S07 (αp)1
12352 N12 (4) 19182 N12 (αp)3
19183 N09 (γ)5
N05
(12356) N41

One of five most magnetically disturbed days with moderate to moderately severe storm after sc and continuing to 1500; no coronal data 7 days earlier on E. limb.



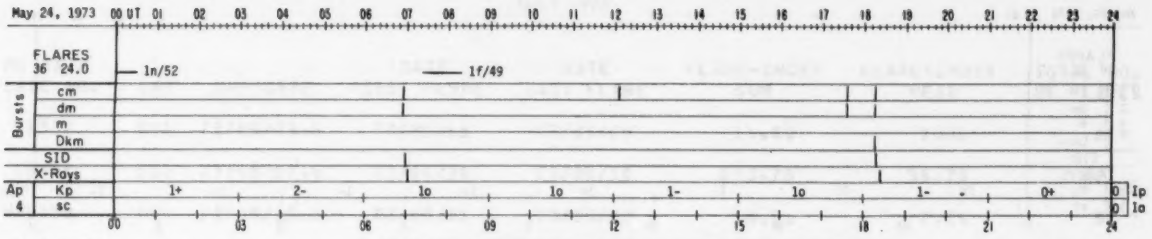
101 10 cm flux
53 Rz

No coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



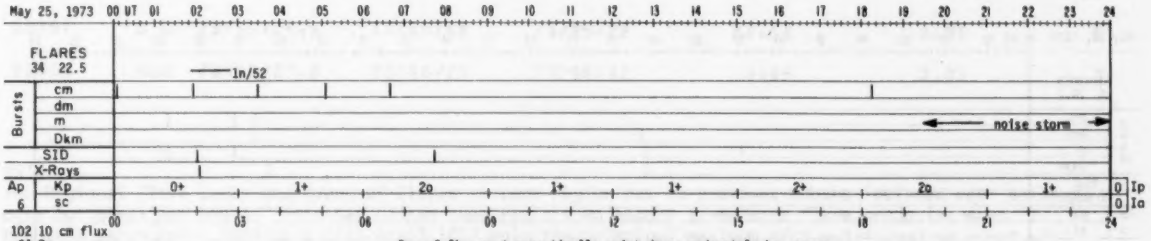
97 10 cm flux
47 Rz

No coronal data 7 days later on W. limb.



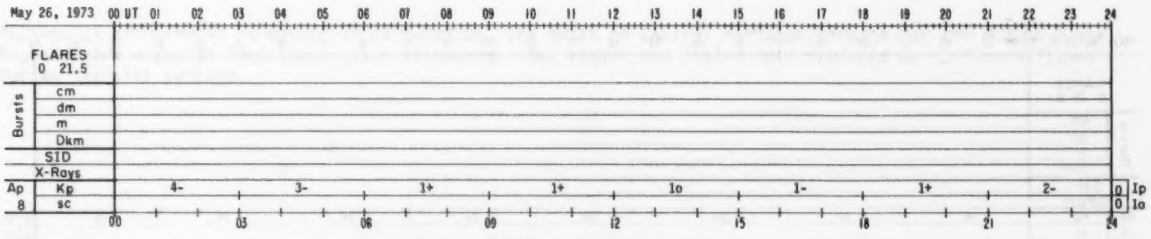
102 10 cm flux
57 Rz
CMP 12361 S09 19190 S10 βp

One of five most magnetically quiet days; no coronal data 7 days earlier on E. limb, nor 7 days later on W. limb.



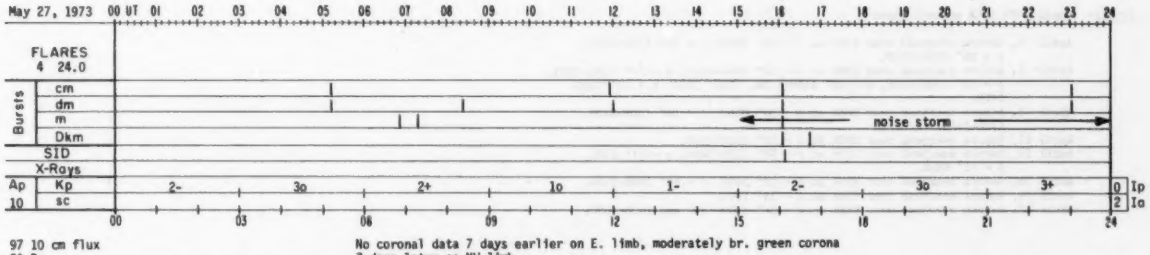
102 10 cm flux
64 Rz
CMP (12367) N22
12357 S06 (3) (19186) S09 αp
19187 S02 (βp)4
19188 S05 β CMP May 26

One of five most magnetically quiet days; moderately br. green corona 7 days earlier on SE limb, br. green corona 7 days later on W. limb.



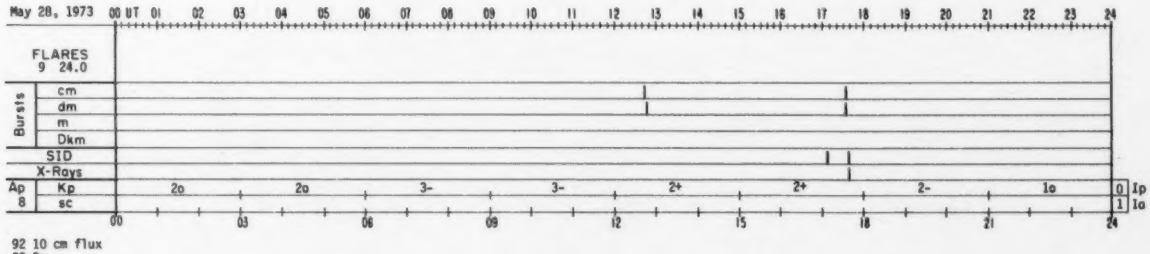
98 10 cm flux
46 Rz
CMP 12359 N01 (19189) N00 βp

No coronal data 7 days earlier on E. limb.

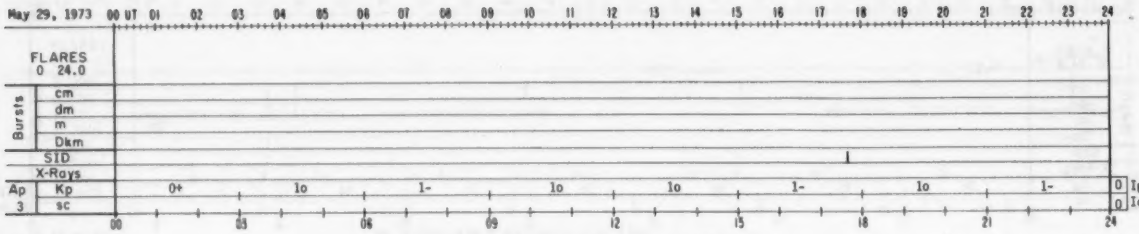


97 10 cm flux
51 Rz
CMP (12364) N18 (19192) N18 (βp)4
(19193) N25 βf

No coronal data 7 days earlier on E. limb, moderately br. green corona 7 days later on NW limb.

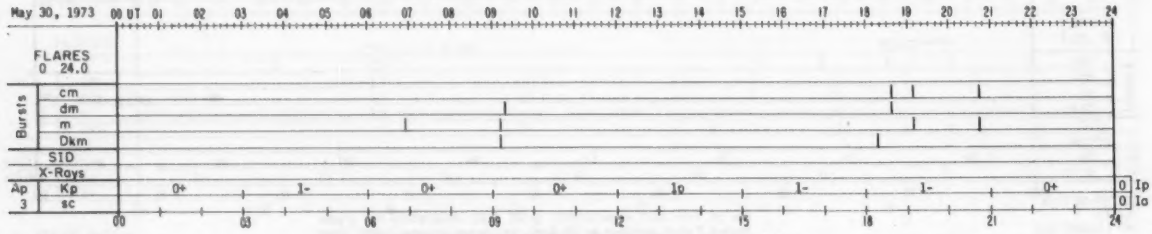


92 10 cm flux
32 Rz
CMP (12369) N01



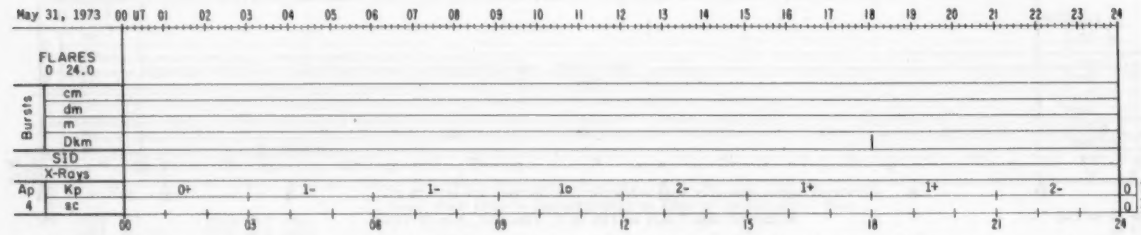
91 10 cm flux
23 Rz
CMP 12360 N14 (3) 19191 N11 αp
(12371) S12

One of five most magnetically quiet days, no coronal data 7 days later on W. limb.



88 10 cm flux
21 Rz
CMP (12370) S13
12365 N20 (5) N17 (no obs. Mt. Wilson)

One of five most magnetically quiet days, no coronal data 7 days later on W. limb.



85 10 cm flux
17 Rz

One of five most magnetically quiet days; no coronal data 7 days later on W. limb.

Errata: April 1973 USSR auroral reports -

April 1, Aurora overhead over USSR at ϕ = 54° 1500, ϕ = 51° 1700-1800, ϕ = 58° 1800-0100.
April 2, Aurora overhead over USSR at ϕ = 58° 0000-0100, ϕ = 59° 1200-1300, ϕ = 54° 1300-1400, ϕ = 49° 1400-1500, 1600, 1800, ϕ = 53° 1600-1900.
April 3, Aurora overhead over USSR at ϕ = 58° 0000, ϕ = 54° 1300-1600, 1700-1800.
April 12, Aurora overhead over USSR at ϕ = 58° 1400-1600.
April 13, Aurora overhead over USSR at ϕ = 59° 1100-1400, ϕ = 57° 1500, ϕ = 55° 1800.
April 14, Aurora overhead over USSR at ϕ = 57° 1400, ϕ = 60° 1900-2100.
April 16, Aurora overhead over USSR at ϕ = 55° 1800.
April 17, Aurora overhead over USSR at ϕ = 54° 1300-1400 and 1900-2000.

REGIONAL FLARE INDEX

MAY 1973

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
12332	S12	73/05/05.6	73/05/01	73/05/09	14.03	1.56	2
12336	S12	73/05/07.4	73/04/30	73/05/10	623.70	56.70	42
12358	N16	73/05/15.6	73/05/21	73/05/22	14.51	7.26	5
12349	S 9	73/05/17.7	73/05/20	73/05/24	18.27	3.65	5
12352	N12	73/05/21.4	73/05/14	73/05/25	658.72	54.89	21
12357	S 6	73/05/25.6	73/05/18	73/05/28	33.52	3.05	6
12364	N18	73/05/27.8	73/06/02	73/06/02	3.05	3.05	3

Note:
The Regional Flare Index and count of flares in each region has in previous months included each maximum of a multi-maximum event. This has caused some regions to appear to be more flare producing than is probably warranted. Beginning with April 1972 only the principal maximum of a multi-maximum event will be used in the calculation. Also note that only the Confirmed Events as selected for the "I.A.U. Quarterly Bulletin on Solar Activity" are included in the calculation.

Because of differences in method of calculation, the dates of Central Meridian Passage for the McMath Plage Regions vary somewhat from those given elsewhere. Any region not listed here produced no confirmed flares during its disk passage.

SGD 352 Part II (Comprehensive)

MISCELLANEOUS DATA

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For explanations of the data contained herein see "Descriptive Text" published as supplement to February 1973 "Solar-Geophysical Data" (Number 342).

COSMIC RAY INDICES
DALLAS SUPER NEUTRON MONITOR
September 1973

DATE	DAILY AVERAGE COUNTS / HOUR*	DATE	DAILY AVERAGE COUNTS / HOUR*
1	6417.3	16	6405.1
2	6419.6	17	6413.7
3	6394.8	18	6436.3
4	6384.0	19	6354.3
5	6407.5	20	6388.6
6	6398.7	21	6378.8
7	6407.0	22	6376.5
8	6408.7	23	6365.3
9	6368.0	24	6327.4
10	6338.3	25	6336.6
11	6355.0	26	6310.8
12	6352.5	27	6300.9
13	6354.4	28	6330.8
14	6414.0	29	6331.2
15	6407.6	30	6356.9

* SCALING FACTOR 120

** NUMBER OF HOURS FOR WHICH DATA ARE AVAILABLE

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(Prepared by World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado)

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